



10th World Congress of Biomechanics

JULY 11 – 15, 2026 | VANCOUVER, CANADA

WWW.WCB2026.COM

In Conjunction with



PROGRAM BOOK

July 11-15, 2026

Vancouver, Canada



visit WWW.WCB2026.COM for more details

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SECTION 1

ABOUT THE CONGRESS

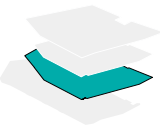


**10th World Congress
of Biomechanics**

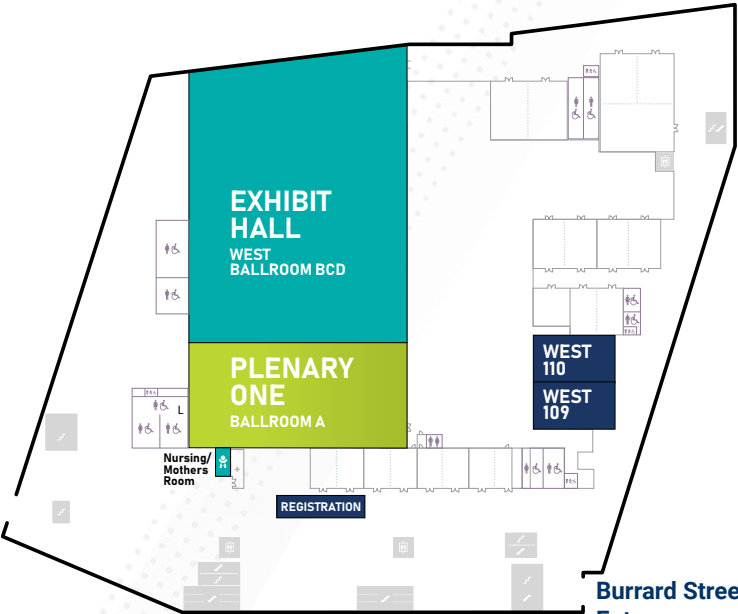
JULY 11 – 15, 2026 | VANCOUVER, CANADA

Floor Maps

Level 1



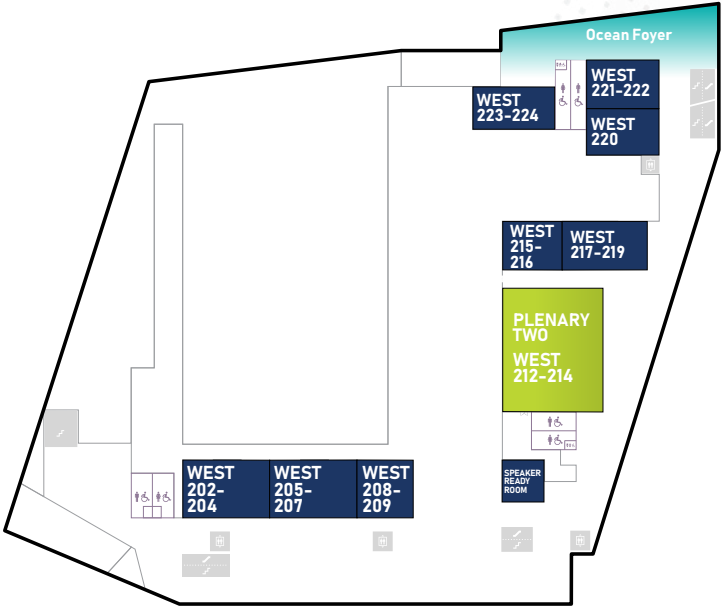
Thurlow Street Entrance



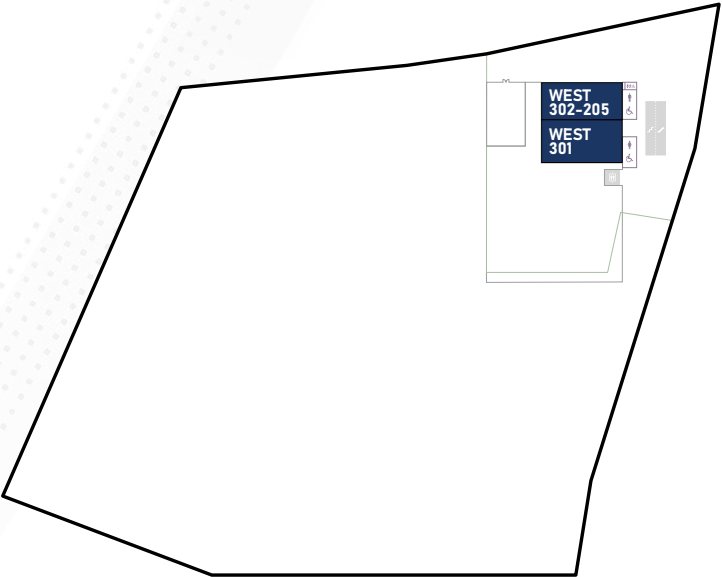
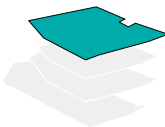
Burrard Street Entrance

Convention Centre
Guest Services

Level 2



Level 3



Welcome Message

from Congress Chair

Dear Colleagues and Friends,

Welcome to Vancouver and welcome to the 10th World Congress of Biomechanics.

After years of planning, it is incredibly exciting to finally welcome you to WCB 2026. Whether you are joining us as a long-time member of the biomechanics community or attending your very first World Congress, thank you for being here and for helping make this gathering truly global.

Over the next five days, more than 3,000 researchers, clinicians, engineers, industry partners, students, and innovators from around the world will come together to share ideas, challenge assumptions, build collaborations, and explore the future of biomechanics.

Our scientific program spans 31 tracks and reflects the remarkable breadth, diversity, and impact of our field. From fundamental research to clinical applications, from sport and rehabilitation to emerging technologies, artificial intelligence, wearable sensors, and novel devices, your contributions to WCB2026 are shaping the future of our field.

While the science is at the heart of WCB, I encourage you to make the most of the many opportunities to connect with colleagues throughout the week. One of the features I am particularly excited about is our Lunch Meet-Ups, which have been designed to bring together delegates with shared interests from across disciplines and career stages.

Whether you are looking for new collaborators, fresh perspectives, or simply an engaging conversation over lunch, I hope you will take advantage of these informal networking opportunities.

I am also delighted to welcome Rick Hansen as our Opening Ceremony keynote speaker. Rick's extraordinary journey, his leadership in advancing accessibility and inclusion, and his commitment to pushing the boundaries of what is possible embody many of the same values that drive our biomechanics community. His story is one of perseverance, innovation, and impact, and I can think of no better way to begin our Congress.

A special welcome goes to our students and early-career researchers. You are the future of our field, and we have worked hard to create opportunities for you to learn, connect, and build your professional network throughout the Congress. From the Student Welcome Lunch and Meet the Biomechanics Experts mentoring session to the Professional Development Roundtables, Morning Social Fun Runs, and the Student Social Mixer, there are countless ways to engage with peers and leaders from around the world.

I would like to extend a huge and heartfelt thank you to the WCB 2026 Student Committee. The energy, creativity, and dedication they have brought to planning student activities has been extraordinary. Many of the events you will enjoy this week were developed and organized by this exceptional group of volunteers. Their commitment to creating an

inclusive, welcoming, and engaging experience for students has helped make WCB 2026 stronger and more vibrant for everyone.

I would also like to thank the World Council of Biomechanics (WCB) as well as our partner societies—the Canadian Society for Biomechanics (CSB), American Society of Biomechanics (ASB), and European Society of Biomechanics (ESB) that all made innumerable contributions to all aspects of planning WCB2026!

Finally, I encourage you to take some time to enjoy Vancouver. Surrounded by mountains, ocean, and some of the most beautiful scenery in the world, our host city offers countless opportunities to explore, recharge, and connect with colleagues outside the Congress venue.

Thank you for joining us for WCB 2026. I hope you leave Vancouver with new knowledge, new collaborations, new friendships, and renewed inspiration for the work ahead.

**On behalf of the Organizing Committee,
welcome to Vancouver and welcome to WCB 2026.**

Chris Dennison

Congress Chair



Welcome Message

from Chairperson of the World Council of Biomechanics

Dear Colleagues and Friends,

On behalf of the Council, it is my great pleasure to welcome you to our 10th World Congress of Biomechanics — a gathering that takes place only once every four years, making your presence all the more meaningful and appreciated.

Whether you are returning after years of anticipation or attending for the very first time, welcome. This is your community.

We live in complex times. Economic pressures, geopolitical uncertainties, and the everyday demands of research and academic life make international travel increasingly challenging. That so many of you have made the effort to be here — from across continents, time zones, and circumstances — is a testament to your commitment to this field and to the collective enterprise of science.

Over the coming days, you will have the opportunity to hear about the most exciting advances in our field, to engage with ideas that will challenge and inspire, and to reconnect with colleagues whose work you have long admired. But equally important are the conversations that happen in the corridors, over coffee/tea, and at the poster sessions — the serendipitous encounters that spark collaborations, open doors, and occasionally change the direction of a career. We warmly encourage you to seek out new faces as much as familiar ones.

To our early-career researchers: this conference was built for you too. Please engage boldly, ask the difficult questions, and know that this community is invested in your growth and your future. My deepest thanks go to the Local Organizing Committee, whose tireless dedication has made this event possible, to the Track Chairs for their expert stewardship of the scientific program, and to the Council for their continued service to our mission. I'd also like to thank the Societies who have supported this conference by incorporating their annual into it.

Now — time to present, listen and discuss. Please enjoy.

Keita Ito

Chair, World Council
of Biomechanics



General Congress Information

Getting Connected

Free WiFi Access

Stay connected throughout the Congress with complimentary WiFi.

Simply select the network WCB 2026 and follow the login instructions.

Network Name: **WCB 2026**

Password: **biomechanics**

Social Media Channels

Stay connected with the biomechanics community and get the latest updates via the social media channels of ASB, CSB or ESB!

Make sure to tag us using hashtag #WCB2026.

Mobile App

The full program including all abstracts are accessible via the Mobile App.

If you need assistance, please visit the WCB 2026 registration desk in the Ballroom Lobby or contact us at: wcb2026-registration@icsevents.com.

Mobile App Features:

- Full Scientific Schedule incl. Abstracts
- Abstract Book, Program Book
- Venue and Exhibit Floor Plan
- Opportunity to Create Personalized Schedule
- Networking Features to Connect with Delegates and Faculty
- Notification Alerts

How to Access the Mobile App:

- Download Floq by Conference Compass from the App Store or Google Play
- Search WCB 2026
- Select 10th World Congress of Biomechanics (WCB 2026)
- Tap Install Event
- Sign in using the same email address used for your Congress registration to access attendee networking and personalized features.



**Scan the QR code
to get started**

Hours of Operations

Registration & Help Desk

West Building, Ballroom Lobby, Level 1

Saturday, July 11	10:00–20:00
Sunday, July 12	08:00–17:00
Monday, July 13	08:00–17:00
Tuesday, July 14	08:00–17:00
Wednesday, July 15	08:00–15:00

Speaker Ready Room

West Building, Meeting Room 210, Level 2

Saturday, July 11	10:00–20:00
Sunday, July 12	08:00–17:30
Monday, July 13	08:00–17:30
Tuesday, July 14	08:00–17:30
Wednesday, July 15	08:00–15:00

Exhibit Hall

West Ballroom BCD, Level 1

Saturday, July 11	18:30–20:00
Sunday, July 12	10:00–17:00
Monday, July 13	10:00–17:00
Tuesday, July 14	10:00–17:00
Wednesday, July 15	10:00–13:30

Poster Display

Exhibit Hall, West Ballroom BCD, Level 1

P1: Sunday, July 12	10:00–17:00
Presenters in Attendance	10:30–11:30
P2: Monday, July 13	10:00–17:00
Presenters in Attendance	10:30–11:30
P3: Tuesday, July 14	10:00–17:00
Presenters in Attendance	10:30–11:30
P4: Wednesday, July 15	10:00–13:30
Presenters in Attendance	10:30–11:30

Refreshments During WCB

The following refreshments will be provided during WCB 2026.

SATURDAY, July 11

- 13:00–14:00 **Student Networking Lunch (Limited Capacity, Sign Up Required)**
Ocean Foyer, Level 2
Light Lunch & Beverages
- 14:00–16:30 **Coffee & Tea**
Foyer Spaces Level 1, 2 and 3
- 18:30–20:00 **Welcome Reception**
Exhibit Hall, West Ballroom BCD
Light Snacks, Beer, Wine & Non-Alcoholic Beverages
(1 Drink Ticket/Delegate), Additional Drinks for Purchase

SUNDAY, July 12

- 07:00–07:45 **Morning Fun Run (Limited Capacity, Sign Up Required)**
Meeting Point: Vancouver Convention Centre, West Building, Burrard Street Entrance, Under the Globe
Hydration Station
- 10:30–11:30 **Coffee Break & Poster Viewing**
Exhibit Hall, West Ballroom BCD
Light Snacks, Coffee & Tea
- 16:00–17:00 **Coffee Break & Poster Viewing**
Exhibit Hall, West Ballroom BCD
Light Snacks, Coffee & Tea
- 19:00–22:00 **Student Night Out (Ticketed Event–SOLD OUT)**
Ocean Foyer, Level 2
Comfort Food, Beer, Wine & Non-Alcoholic Beverages
(1 Drink Ticket/Delegate), Additional Drinks for Purchase

MONDAY, July 13

- 07:00–07:45 **Morning Fun Run (Limited Capacity, Sign Up Required)**
*Meeting Point: Vancouver Convention Centre, West Building,
Burrard Street Entrance, Under the Globe*
Hydration Station *sponsored by* 
- 10:30–11:30 **Coffee Break & Poster Viewing**
Exhibit Hall, West Ballroom BCD
Light Snacks, Coffee & Tea
- 15:00 - 16:00 **Coffee Break & Poster Viewing**
Exhibit Hall, West Ballroom BCD
Light Snacks, Coffee & Tea
- 18:00–19:00 **ESB 50th Anniversary (ESB Members Only, Sign Up Required)**
West Ballroom Foyer, Level 1
Celebratory Drinks (2 Drink Tickets/Delegate),
Additional Drinks for Purchase

TUESDAY, July 14

- 07:00–07:45 **Morning Fun Run (Limited Capacity, Sign Up Required)**
*Meeting Point: Vancouver Convention Centre, West Building,
Burrard Street Entrance, Under the Globe*
Hydration Station *sponsored by* 
- 10:30–11:30 **Coffee Break & Poster Viewing**
Exhibit Hall, West Ballroom BCD
Light Snacks, Coffee & Tea
- 16:00–17:00 **Coffee Break & Poster Viewing**
Exhibit Hall, West Ballroom BCD
Light Snacks, Coffee & Tea
- 20:00–23:00 **Congress Night at the Aquarium (Ticketed Event, SOLD OUT)**
Vancouver Aquarium
Food Stations, Beer, Wine and Non-Alcoholic Drinks
(2 Drink Tickets/Delegate), Additional Drinks for Purchase

WEDNESDAY, July 15

- 07:00–07:45

Morning Fun Run (Limited Capacity, Sign Up Required)

Meeting Point: Vancouver Convention Centre, West Building, Burrard Street Entrance, Under the Globe

Hydration Station
- 10:30–11:30

Coffee Break & Poster Viewing

Exhibit Hall, West Ballroom BCD

Light Snacks, Coffee & Tea

Water Stations

Available throughout the WCB 2026 spaces at the Vancouver Convention Center, West Building. We encourage delegates to use refillable water bottles whenever possible.



Onsite Delegate Services

Nursing Mother’s Lounge / Quiet Room / Prayer Room

The conference centre offers a multipurpose Nursing Room / Quiet Room that provides a private, comfortable space suitable for nursing, prayer, or rest. The room is located on Level 1 next to Ballroom A of the West Building at the Vancouver Convention Centre. To use this room, delegates can visit Guest Services located at the Burrard St. Entrance (area next to the large Globe) and request access. Delegates traveling with children may also explore local childcare and nanny services.

First Aid and Emergency Services

The Vancouver Convention Centre operates a fully equipped first aid room with trained first aid personnel located next to Ballroom A of the West Building. In an emergency, dial 604-647-7500 for immediate response.

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FIFA Watch Zone

Take a break from the science and catch the excitement of the FIFA World Cup 2026™ in our dedicated FIFA Watch Zone located in the Exhibit Hall. Cheer on your favorite team, connect with colleagues from around the world, and experience the thrill of the beautiful game while staying up to date on the latest tournament action.

Whether you are a lifelong football fan or simply looking for a lively place to network between sessions, the Watch Zone is the perfect spot to gather, relax, and celebrate the global spirit of WCB 2026.

Exhibit Hall

West Ballroom BCD, Level 1

Sunday, July 12	10:00–17:00
Monday, July 13	10:00–17:00
Tuesday, July 14	10:00–17:00
Wednesday, July 15	10:00–13:30

WCB's Got Talent

Biomechanics is not the only talent on display at WCB 2026! Our Call for Talent attracted an impressive array of submissions from delegates around the world, showcasing the creativity, passion, and diversity of our global community.

Throughout the Congress, selected performers will take the stage during the Welcome Reception, Congress Evening at the Aquarium, and Student Night Out, adding a unique and memorable element to these social events.

Join us in celebrating the talent behind the science. From live music to unexpected performances, these showcases are sure to entertain, inspire, and bring our community together in a whole new way.

SATURDAY, July 11

Welcome Reception

18:30–20:00

Exhibit Hall, West Ballroom BCD, Level 1

- 19:00 Cameron Jensen, USA
- 19:10 Claudia Kacmarcik, USA
- 19:20 Lise Worthen-Chaudhari, USA
- 19:30 Phoebe Cheung, New Zealand

Piano Performance

Contemporary Dance Performance

Argentine Tango Performance–

Audience Participation Encouraged

Piano Performance

SUNDAY, July 12

Student Night Out

(Ticketed Event)

19:00–22:00

Ocean Foyer, Level 2

- 20:00 **Luigi's Fishtank featuring James Arnold, David Point and David Adam Quirk**

TUESDAY, July 14

Congress Night at the Aquarium

(Ticketed Event—SOLD OUT)

20:00–23:00

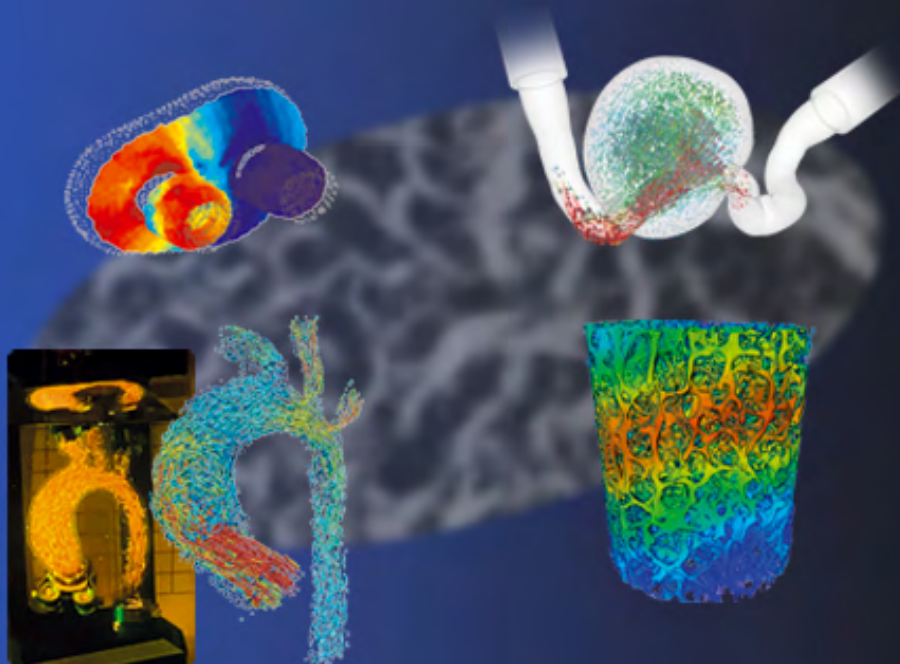
Vancouver Aquarium: 845 Avison Way, Vancouver, BC V6G 3E2

20:15	Ethan Kung, USA	Solo Vocal with Acoustic Guitar
20:45	Kathlyn Downer, USA	Juggling Performance
21:15	Victoria Spartacus, France	Vocal
21:45	Victor Huayamave, USA	Electric Guitar

Disclaimer

The organizers have made every attempt to ensure that all the information in this publication is correct. The organizers take no responsibility for changes to the program or any loss that may occur due to changes to the program. Some of the information provided in this publication has been provided by external sources. Although every effort has been made to ensure the accuracy, currency, and reliability of the content, the organizers accept no responsibility in that regard

Image-based Measurement Systems for Characterization and Validation in Biomechanics and Biofluidics



- ▶ Understand shape changes and strain patterns in soft tissues
- ▶ Gather full volume fluid velocity data in cardiovascular systems
- ▶ Measure the motion of joints and muscles non-intrusively
- ▶ Study Fluid-Structure Interaction effects in heart valves
- ▶ Full volume experimental data for validation of FEA and CFD

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E-mail: sales@lvision.com
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SECTION 2

PROGRAM



**10th World Congress
of Biomechanics**

JULY 11 – 15, 2026 | VANCOUVER, CANADA

Program

SATURDAY, July 11

Student Networking Welcome Lunch

(Limited Capacity, Sign Up Required)

13:00–14:00 | Level 2 Ocean Foyer

ES3 – Considerations for Designing Engineering Solutions for Diverse Human Use—How Does Truth and Reconciliation and Inclusion Efforts Fit In?

14:30–15:30 | West 215-216

Track: Biomechanics Education, Knowledge Translation and Outreach

14:30- 15:30 | ES3-01

Considerations for Designing Engineering Solutions for Diverse Human Use—How Does Truth and Reconciliation and Inclusion Efforts Fit In?

Jessica Vandenberghe (Canada)

OA1 – Neuromechanics**14:30–15:30** | West Ballroom A**Track: Clinical Biomechanics***Chair(s): Jessica Allen (United States), Felipe Carpes (Brazil)***14:30–14:42** | OA1-05

TBD

*Carolynn Patten (United States)***14:42–14:45** | Q&A**14:45–14:53** | OA1-01**Knee and Ankle Posture Impacts Triceps Surae Muscle Neuromechanics***Sittinon Nuethong (United States)***14:53–14:56** | Q&A**14:56–15:04** | OA1-02**Neural Correlates of Knee Flexion-Extension After Unilateral Transtibial Limb Loss***Courtney Butowicz (United States)***15:04–15:07** | Q&A**15:07–15:15** | OA1-03**Neural Control of Isometric Lower Limb Muscle Contractions in Typically Developing Children and Children with Cerebral Palsy***Andrea Sgarzi (Australia)***15:15–15:18** | Q&A**15:18–15:26** | OA1-04**The Effects of Carpometacarpal Osteoarthritis on Neuromuscular Coordination***Troy Kelly Jr (United States)***15:26–15:30** | Q&A

OA2 – Escaping the Laboratory 1: Markerless Gait Analysis

14:30–15:30 | West 211-214

Track: Human Motion and Performance: Locomotion/Gait

Chair(s): David Ackland (Australia), Zimi Sawacha (Italy)

14:30–14:42 | OA2-01

2D Markerless Motion Capture to 3D Skeletal Motion Using Inverse Kinematics

Raphael Dumas (France)

14:42–14:45 | Q&A

14:45–14:53 | OA2-02

Sensitivity of Markerless Lower-Limb Kinematics to Camera Height and Capture-Volume Width: Implications for Camera Placement

Alexander Hadwen (Canada)

14:53–14:56 | Q&A

14:56–15:04 | OA2-03

Markerless Motion Capture of Wrist Kinematics in Wheelchair Users with Spinal Cord Injury

Samuel Gillespie (United States)

15:04–15:07 | Q&A

15:07–15:15 | OA2-04

Feasibility and Reliability of OpenCap for Assessing Toddler Gait Kinematics

Ashley Collimore-Doherty (United States)

15:15–15:30 | Q&A

OA3 – Assessment to Predict Performance

14:30–15:45 | West 301

Track: Human Motion and Performance: Sports

Chair(s): Brydan Lindsey (China), Lisa MacFadden (United States)

14:30–14:38 | OA3-01

Velocity-Based Strength Training: The Predictive Use of Mean Concentric Velocity Data

Silvio Lorenzetti (Switzerland)

14:38–14:41 | Q&A

14:41–14:49 | OA3-02

Task-Specific Roles of Upper-Limb Strength in Wheelchair Basketball Performance on Agility, Speed, and Endurance Assessments

Jennifer Gruenhagen (United States)

14:49–14:52 | Q&A

14:52–15:00 | OA3-03

No Relation Between Maximum Hip Abductor Strength and Fatigue-Induced Changes in Hip Adduction Angles During a Near-Maximum 10 Km Run

Laila Sikeler (Germany)

15:00–15:03 | Q&A

15:03–15:11 | OA3-04

Improving an Elite-Athlete's Cutting Movement Assessment Score May Improve Their Cutting Performance in Addition to Reducing Their Risk of Injury.

Evan Dooley (United States)

15:11–15:14 | Q&A

15:14–15:22 | OA3-05

Preseason Functional Assessments Can Predict Ski Performance in Elite Biathletes

Morgan Koskela (United States)

15:22–15:25 | Q&A

15:25–15:33 | OA3-06

Biomechanical Predictors of Future Success Among High School Baseball Pitchers

Jonathan Slowik (United States)

15:33–15:36 | Q&A

OA4 – Growth and Remodeling

14:30–15:45 | West 302-305

Track: Cardiovascular/Cardiorespiratory Biomechanics: Methods, Models and Applications

Chair(s): Stéphane Avril (France), Jessica Wagenseil (United States)

14:30–14:42 | OA4-01

Modeling Growth and Remodeling in Tissue-Engineered Heart Valves: Integrating Mechanobiology and Local Density of Macrophages and Tissue-Producing Cells

Justina Ghebryal (Netherlands)

14:42–14:45 | Q&A

14:45–14:57 | OA4-06

A Graph-Informed Mechanochemical Framework and Rule-Based Grammar for Discovering Vascular Inflammation Mechanisms

Michele Marino (Italy)

14:57–15:00 | Q&A

15:00–15:08 | OA4-02

Incorporating Cell-Mediated Collagen Prestretch to Predict Context-Dependent Growth and Remodeling

Sandra Loerakker (Netherlands)

15:08–15:11 | Q&A

15:11–15:19 | OA4-03

Distinct Remodeling Responses Emerge Across Sex and Castration Groups in Ovine Tricuspid Valve Leaflets

Colton Kostelnik (United States)

15:19–15:22 | Q&A

15:22–15:30 | OA4-04

Flow-Mediated Atherosclerotic Growth and Remodeling in Murine Femoral Arteries

Gloriani Sanchez Marrero (United States)

15:30–15:33 | Q&A

15:33–15:41 | OA4-05

A Multi-scale Modeling Approach for Understanding Cardiovascular Remodeling in Gender-Affirming Hormone Replacement Therapy

Christian Andrade Herrera (United States)

15:41–15:45 | Q&A

OA5 – Imaging-Based Musculoskeletal Biomechanics

14:30–15:45 | West 202-204

Track: Musculoskeletal Biomechanics: Methods, Models and Applications

Chair(s): Ameet Aiyangar (Switzerland), Uwe Wolfram (Germany)

14:30–14:38 | OA5-01

Micro Finite Element Models of the Growth Plate Under Physiological Loading

Marta Peña Fernández (United Kingdom)

14:38–14:41 | Q&A

14:41–14:49 | OA5-02

A New Isobaric Mapping Method for the Bone Vascular Network.

Jean Boisson (France)

14:49–14:52 | Q&A

14:52–15:00 | OA5-03

Neutral Pose Normalization May Misrepresent Tibiotalar Kinematics in Clinical Populations

Emily Smith-Bregeda (Canada)

15:00–15:03 | Q&A

15:03–15:11 | OA5-04

Feasibility of MRI for Tibial Strain Estimation in Physically Active Adults

Olivia L Bruce (United States)

15:11–15:14 | Q&A

15:14–15:22 | OA5-05

Laplace-Hamming Segmentation Changes Clinical Interpretation of HR-pQCT Microarchitecture and Strength Outcomes in Children With Osteogenesis Imperfecta and Healthy Controls

Seyedmahdi Hosseinitabatabaei (Canada)

15:22–15:25 | Q&A

15:25–15:33 | OA5-06

Reliability of Measuring Meniscal Extrusion in Weightbearing Using Upright Open Magnetic Resonance Imaging

Jordan Broberg (Canada)

15:33–15:36 | Q&A

OA6 – Field Measurements of Injury

14:30–15:30 | West 205-207

Track: Injury Biomechanics

Chair(s): Haneesh Kaseri (United States), Lyndia Wu (Canada)

14:30–14:42 | OA6-01

On-Field Head Kinematics, Brain Strain and Blood Biomarkers: Towards Real-World Prediction of Brain Injury

Mazdak Ghajari (United Kingdom)

14:42–14:45 | Q&A

14:45–14:53 | OA6-02

Prediction of Hip Impact Force From Video-Captured Falls Using Pose-Estimated Kinematics

Reese Michaels (United States)

14:53–14:56 | Q&A

14:56–15:04 | OA6-03

Using Instrumented Mouthguards to Detect Concussions: Preliminary Findings in Men's Rugby League

James Tooby (United Kingdom)

15:04–15:07 | Q&A

15:07–15:15 | OA6-04

Spatial and Positional Patterns of Video-Verified Head Impacts in Men's Collegiate Ice Hockey

Rebecca Kenny (Canada)

15:15–15:18 | Q&A

15:18–15:26 | OA6-05

Predicting Biomarker-Defined Brain Injury From Instrumented Mouthguard Head Kinematics and Finite Element Brain Strain in Sport-Related Head Impacts

James Hickey (Australia)

15:26–15:30 | Q&A

OA7 – Characterization of Organ and Tissue Biomechanics, In Vivo and In Vitro

14:30–15:30 | West 109

Track: Organ and Tissue Biomechanics

Chair(s): Taiji Adachi (Japan), Sabine Bensamoun (France)

14:30–14:42 | OA7-01

Musculoskeletal Tissue Atlas—Linking Structure, Mechanics, and Composition

Elizabeth Clarke (Australia)

14:42–14:45 | Q&A

14:45–14:53 | OA7-02

Indentation-Based Identifiability of Anisotropic Soft Tissue Material Parameters

Dana Solav (Israel)

14:53–14:56 | Q&A

14:56–15:04 | OA7-03

Full-Field Indentation Microscopy: Inferring Tissue Microstructure From a Single Poke

Callan Luetkemeyer (United States)

15:04–15:07 | Q&A

15:07–15:15 | OA7-04

Characterization of Human Breast Skin Mechanics for Improved Tissue Expansion in Breast Reconstruction Surgery

Nicole Ritter (Belgium)

15:15–15:30 | Q&A

OA8 – Movement Adaptations and Knee Function Control

14:30–15:30 | West 110

Track: Musculoskeletal Biomechanics: Joints and Motion

Chair(s): Amir Esrafilian (United States), Dylan Kobsar (Canada)

14:30–14:42 | OA8-01

Multiscale Computational Modeling of Knee Joint Mechanics and Adaptation

Rami Korhonen (Finland)

14:42–14:45 | Q&A

14:45–14:53 | OA8-02

Anterior Cruciate Ligament Elongation During High and Low Impact Movements Using Biplanar Videoradiography

Anastasija Mihic (Canada)

14:53–14:56 | Q&A

14:56–15:04 | OA8-03

A Novel Method of Quantifying Changes in Tibiofemoral Joint Stiffness After Ligament Injury via Eigendecomposition Using In Vitro Robotic Testing

David Shamritsky (United States)

15:04–15:07 | Q&A

15:07–15:15 | OA8-04

The Knee You Model is the Knee You Measure: How the Knee Model Degrees of Freedom and Range of Motion Alter the Knee Abduction Moment during Change-of-Direction

Maurice Mohr (Austria)

15:15–15:18 | Q&A

15:18–15:26 | OA8-05

Impact of Neurocognitive Reaction Time on the Performance of an Unanticipated Sidestep Cut

Cole Geschwender (United States)

15:26–15:30 | Q&A

OA9 – Clinical Outcome Prediction

14:30–15:30 | West 223-224

Track: Emerging Areas

Chair(s): Jeonghwan Lee (United States), Claire Jones (Australia)

14:30–14:42 | OA9-01

Prediction of Spinal Loads With Agentic Biomechanical Modeling

Farshid Ghezelbash (United States)

14:42–14:45 | Q&A

14:45–14:53 | OA9-02

Machine Learning Estimates Ground Reaction Forces with Higher Accuracy than Musculoskeletal Simulation for Anterior Cruciate Ligament Injury-Risk Screening Tasks

Janelle Kaneda (United States)

14:53–14:56 | Q&A

14:56–15:04 | OA9-03

Neural Network Surrogates for Musculoskeletal Models: An Application to Implant Alignment in Total Knee Arthroplasty

Linda ten Klooster (Netherlands)

15:04–15:07 | Q&A

15:07–15:15 | OA9-04

Sit-to-Stand Biomechanical Subgroups Identified From a Large Dataset of Clinically Accessible Smartphone Video Recordings

Kathryn Blessinger (United States)

15:15–15:18 | Q&A

15:18–15:26 | OA9-05

Bridging OpenCap Outputs to Clinically Useful Gait Reports

Joseph Mahoney (United States)

15:26–15:30 | Q&A

OA10 – Contrast-Enhanced Imaging

14:30–15:30 | West 217-219

Track: Imaging and Biomedical Devices: Imaging Fundamentals and Applied Research

Chair(s): Ralph Müller (Switzerland), Kathryn Stok (Australia)

14:30–14:42 | OA10-01

From 2D Histology to Quantitative 3D Histology: Contrast-enhanced MicroCT for Biomechanical Tissue Research

Greet Kerckhofs (Belgium)

14:42–14:45 | Q&A

14:45–14:53 | OA10-02

Exploring Carotid Plaque Rupture Risk Using Non-Invasive MRI-Quantitative Susceptibility Mapping Validated by Comprehensive Multimodal Imaging

Francesco Digeronimo (Ireland)

14:53–14:56 | Q&A

14:56–15:04 | OA10-03

Steps Toward Understanding Stent Thrombosis

Hadi Mirgolbabaee (Netherlands)

15:04–15:07 | Q&A

15:07–15:15 | OA10-04

TomoSAXS: Full Field 3D X-Ray Scattering Tomography for Biomechanics

Alissa Parmenter (United Kingdom)

15:15–15:18 | Q&A

15:18–15:26 | OA10-05

Structural Disease Patterns of Early Osteoarthritis in a DMM Mouse Model Relating to Mechanical Changes Revealed Using Time-Lapse In Vivo Contrast-Enhanced Micro-Computed Tomography

Kathryn S Stok (Australia)

15:26–15:30 | Q&A

OA11– Microphysiological Systems and Organoid-based Tissue Engineered Implants

14:30–15:30 | West 221-222

Track: Tissue Engineering: Methods, Models and Applications

Chair(s): Roger Kamm (United States)

14:30–14:42 | OA11-05

All-aqueous and Droplet Microfluidics for Organoids and Engineered Tissues

Ho Cheung Shum (Hong Kong)

14:42–14:45 | Q&A

14:45–14:53 | OA11-01

The Matrix Reintegrated: Engineering Extracellular Matrix Mechanics in Organ-on-Chips

Hazal Kutluk (Germany)

14:53–14:56 | Q&A

14:56–15:04 | OA11-02

A Microfluidic Platform for Perfused Culture of Organoid Units With Engineered Vascular Networks

Ayaka Kadotani (Japan)

15:04–15:07 | Q&A

15:07–15:15 | OA11-03

Engineered 3D Scaffolds for Modeling Dermal Tissue Regeneration and Macrophage Immune Dynamics

Chiara Martinelli (Italy)

15:15–15:18 | Q&A

15:18–15:26 | OA11-04

Bending Stiffness Recovery of the Functional Spinal Unit Repaired With Human iPS Cell-Derived Cartilaginous Tissue

Hiromichi Fujie (Japan)

15:26–15:30 | Q&A

OA12 – Comparative Neuromuscular Function

14:30–15:30 | West 220

Track: Comparative Biomechanics

Chair(s): Craig McGowan (United States), Letizia Zulio (Italy)

14:30–14:42 | OA12-01

How Muscle Properties Influence Motor Control in Vertebrate Limbs

Chris Richards (United Kingdom)

14:42–14:45 | Q&A

14:45–14:53 | OA12-02

Extracellular Matrix Shape Change Contributes to Skeletal Muscle Passive Force Production

Emily McParland (United States)

14:53–14:56 | Q&A

14:56–15:04 | OA12-03

Scaling Work and Stability: How Two Distal Muscles Partition Propulsion and Landing Control in Guinea Fowl

Caitlin Bemis (United States)

15:04–15:07 | Q&A

15:07–15:15 | OA12-04

Extreme Heat Production and Thermal Gradients in the Flight Muscles of Bombycoid Moths

Ethan Wold (United States)

15:15–15:18 | Q&A

15:18–15:26 | OA12-05

The Effect of Sensory Loss on Jaw Kinematics and Muscle Activation During Mastication

Jing-Sheng Li (United States)

15:26–15:30 | Q&A

OA13 – Muscle Biomechanics – Locomotion and Neuromuscular System

14:30–15:30 | West 208-209

Track: Orthopaedic Biomechanics: Sports Medicine

Chair(s): Adamantios Arampatzis (Germany), Walter Herzog (Canada)

14:30–14:42 | OA13-01

Integration of Movement Sciences and Adapted Recreation: A Pathway to Improve Function and Well-being of Individuals Living with Disabilities

Jill I McNitt-Gray (United States)

14:42–14:45 | Q&A

14:45–14:57 | OA13-02

Neuromechanics and Muscle–Tendon Unit Function in Humans

Daniel Hahn (Germany)

14:57–15:00 | Q&A

15:00–15:08 | OA13-03

Can Concomitant Meniscus Injury Modify Jumping Characteristics in Female Adolescents After ACL Reconstruction?

Allison Clouthier (Canada)

15:08–15:11 | Q&A

15:11–15:19 | OA13-04

Stretch-Shortening Cycle Force-Time and Power-Time SPM Waveform Analysis Indicates Limitations of the Contralateral Limb Benchmark in Athletes After ACLR

Shadan Al-Saket (Canada)

15:19–15:30 | Q&A

ES4 – Empowerment in Motion: Advancing Biomechanics Through Inclusive Mentorship

15:45–16:45 | West 215-216

Track: Biomechanics Education, Knowledge Translation and Outreach

15:45–16:00 | Welcome, Introduction, and Session Overview

Jazmin Cruz (United States)

Elisa Romero-Avila (Germany)

Edward Ofori (United States)

16:00–16:20 | Guest Talk.

Cory Powell

16:20–16:40 | Interactive Panel / Round Table Discussion

16:40–16:45 | Closing Remarks

OA14 – Clinical Practice – Upper Extremity

15:45–16:55 | West Ballroom A

Track: Clinical Biomechanics

Chair(s): *Fransiska Bossuyt (Switzerland), Margit Gfohler (Austria)*

15:45–15:53 | OA14-01

Comparison of Scapulothoracic and Glenohumeral Kinematics and Muscle Activation in Individuals Undergoing Bankart and Latarjet Repair

Jonathan Gustafson (United States)

15:53–15:56 | Q&A

15:56–16:04 | OA14-02

Changes in Shoulder Biomechanics During Forward Flexion After Bankart and Latarjet Procedures

Renato Miyadahira (Brazil)

16:04–16:07 | Q&A

16:07–16:15 | OA14-03

Association Between Glenoid Deformity Correction and Functional Humeral Head Subluxation in Anatomic Total Shoulder Arthroplasty

Nazanin Daneshvarhashjin (Belgium)

16:15–16:18 | Q&A

16:18–16:26 | OA14-04

Kinematic and Electromyographic Differences Between Medialized and Lateralized Glenospheres During External Rotation

Jonathan Gustafson (United States)

16:26–16:29 | Q&A

16:29–16:37 | OA14-05

Muscle-Tendon Recovery Trajectories Relate to Shoulder Disability in Rotator Cuff Tendinopathy

Kayla Seymore (United States)

16:37–16:40 | Q&A

16:40–16:48 | OA14-06

Exploratory Kinematic Analysis for Identifying Humeral Elevation Control Strategies in Rotator Cuff Tendinopathy

Chethan Reddy (United States)

16:48–16:51 | Q&A

OA15 – Escaping the Laboratory 2: Gait Analysis With Wearable Sensors

15:45–16:45 | West 211-214

Track: Human Motion and Performance: Locomotion/Gait

Chair(s): Stephen Cain (United States), Jocelyn Hafer (United States)

15:45–15:57 | OA15-01

Multiple Garment Embedded Sensors With Physics Informed AI Predict Tissue Loading in the Real-World

Claudio Pizzolato (Australia)

15:57–16:00 | Q&A

16:00–16:08 | OA15-02

Full-Body Gait Reconstruction from Arbitrarily Sparse Wearable Sensors via Diffusion Models with Transfer from Healthy to Pathological Populations

Run Lin (United Kingdom)

16:08–16:11 | Q&A

16:11–16:19 | OA15-03

IMU-Derived Impact Metrics From an Outdoor Run Are Correlated to Motion Capture-Calculated Joint Kinetics

Tatiana Djafar (United States)

16:19–16:22 | Q&A

16:22–16:30 | OA15-04

Detection of Gait Events during Aquatic Treadmill Walking using Shank Angular Velocity

David Kingston (United States)

16:30–16:33 | Q&A

16:33–16:41 | OA15-05

Lower Limb Joint Kinematics in Older Adults During Walking in the Home Setting

David Ackland (Australia)

16:41–16:45 | Q&A

OA16 – Baseball**15:45–16:55** | West 301**Track: Human Motion and Performance: Sports***Chair(s): Mark King (United Kingdom), Antonia Zaferiou (United States)***15:45–15:53** | OA16-01**Do Shoulder and Elbow Kinetics and Pitching Kinematics Differ Between Pitching On Dirt Surface and Turf Surface Pitching Mounds?***Rafael Escamilla (United States)***15:53–15:56** | Q&A**15:56–16:04** | OA16-02**The Influence of Soft Tissue Glenohumeral Internal Rotation Deficit (ST-GIRD) on Proprioceptive Feedback, Cortical Activity, and Pitching Performance in Baseball Players***Zong-Han Hsieh (Taiwan)***16:04–16:07** | Q&A**16:07–16:15** | OA16-03**Intersegmental Coordination in Baseball Pitching: Identifying Skill Level Differences***Michael Jensen (United States)***16:15–16:18** | Q&A**16:18–16:26** | OA16-04**Field Performance of Modern Collegiate Baseball Bats***JJ Trey Crisco (United States)***16:26–16:29** | Q&A**16:29–16:37** | OA16-05**Stride Phase Pelvis Momentum Influences Throwing Arm Load in Collegiate Baseball Pitchers***Adam Barrack (United States)***16:37–16:40** | Q&A**16:40–16:48** | OA16-06**The Influence of Shoulder Range-of-Motion on Elbow Valgus Torque Throughout a Baseball Pitch***Jonathan Slowik (United States)*

16:48–16:51 | Q&A

OA17 – Atherosclerosis

15:45–16:45 | West 302-305

Track: Cardiovascular/Cardiorespiratory Biomechanics: Methods, Models and Applications

Chair(s): Sandra Hager (United States), Triona Lally (Ireland)

15:45–15:57 | OA17-01

How Can Biomechanics Help Prevent the Next Atherosclerosis-Triggered Cardiovascular Event?

Ali Akyildiz (Netherlands)

15:57–16:00 | Q&A

16:00–16:08 | OA17-02

Disturbed Flow, Cytokine Signaling, and Plaque Growth: Insights from Sensitivity and Flow-Disturbance Analyses Using a Multiscale, Multiphysics Model of Coronary Atherosclerosis

Jeremy Warren (United States)

16:08–16:11 | Q&A

16:11–16:19 | OA17-03

A Longitudinal Study on the Association Between Haemodynamics and Early Plaque Formation in Female Coronary Arteries

Susann Beier (Australia)

16:19–16:22 | Q&A

16:22–16:30 | OA17-04

Plaque Material Stiffness as a Biomechanical Marker Distinguishing ACS from Stable Coronary Lesions

Jack Wang (United States)

16:30–16:33 | Q&A

16:33–16:41 | OA17-05

Graph-Derived Mechanochemical Simulations Capture Patient-Specific and Population-Level Variability in Atherosclerosis Progression

Alessandro Mastrofini (Italy)

16:41–16:45 | Q&A

OA18 – Clinical and Translational Biomechanics

15:45–16:55 | West 202-204

Track: Musculoskeletal Biomechanics: Methods, Models and Applications

Chair(s): Philippe Büchler (Switzerland), Lauren Welte (Canada)

15:45–15:53 | OA18-01

Predicting Femoral Fracture in Postmenopausal Women: Multi-Cohort Clinical Validation of the BBCT-Hip Pipeline

Julia Aleksandra Szyszko (Italy)

15:53–15:56 | Q&A

15:56–16:04 | OA18-02

Associations Between Spinal Parameters and Loads During Gait in Patients With Lumbar Spinal Stenosis: A Combined Clinical and Musculoskeletal Modeling Study

Alice Caimi (Switzerland)

16:04–16:07 | Q&A

16:07–16:15 | OA18-03

Evaluation of Bicycle Delivery Workers' Load With the 3D-Musculoskeletal Computermodel "Myonardo"

Norbert Lechner (Austria)

16:15–16:18 | Q&A

16:18–16:26 | OA18-04

The Influence of Subject-Specific Musculoskeletal Modeling on Contact Stress Predictions in Dysplastic Hips

Molly Shepherd (United States)

16:26–16:29 | Q&A

16:29–16:37 | OA18-05

Biomechanical Predictors of Self-Contamination During Medical Gown Doffing: A Motion-Capture Analysis of Hand-Gown Interaction

Li-Shan Chou (United States)

16:37–16:41 | Q&A

16:41–16:49 | OA18-06

Integrating Models and Muscle-Tendon Function to Understand Sex-Specific Responses to Different Footwear Stiffness during Running

Vivian Nguyen (Canada)

16:49–16:52 | Q&A

OA19 – Experimental Modeling of Injury 1

15:45–16:45 | West 205-207

Track: Injury Biomechanics

Chair(s): Lakiesha Williams (United States), Claire Jones (Australia)

15:45–15:57 | OA19-01

Integrating Biomechanics with Epidemiology and Human Factors to Improve Road Traffic Safety for Children

Kristy Arbogast (United States)

15:57–16:00 | Q&A

16:00–16:08 | OA19-02

Neck Muscle Activation during Inverted Freefalls in Human Subjects

Loay Al-Salehi (Canada)

16:08–16:11 | Q&A

16:11–16:19 | OA19-03

Lesion Angle and Length Correlate in High-Energy Injuries of Articular Cartilage Explants

Alexander Paz Carvajal (Finland)

16:19–16:22 | Q&A

16:22–16:30 | OA19-04

Fall Detection in Extreme Class Imbalance: A Cascade Architecture for Real-World Deployment

Ethan Henley (United States)

16:30–16:33 | Q&A

16:33–16:41 | OA19-05

Translating Ballet Landing Mechanics to ACL Injury Prevention: A Biomechanical Comparison of Landing Strategies Between Female Dancers and Non-Dancers

Annabelle Sung Min Kang (Korea, Republic of)

16:41–16:45 | Q&A

OA20 – Biomechanically-Informed Rehabilitation Interventions**15:45–16:55** | West 109**Track: Rehabilitation Biomechanics and Human Factors: Rehabilitation***Chair(s): Michael Hunt (Canada), Monica Maly (Canada)***15:45–15:53** | OA20-01**Phase-Specific Neuromechanical Effects of Virtual and Augmented Reality-enhanced Robotic Gait Training After Stroke***Chaesu Kim (Korea, Republic of)***15:53–15:56** | Q&A**15:56–16:04** | OA20-02**Sonified-Biofeedback Training to Improve Postural Control in Older Adults***Zahava Hirsch (United States)***16:04–16:07** | Q&A**16:07–16:15** | OA20-03**People With Unilateral Transtibial Amputation Reorganize Muscle Coordination Patterns When Walking With Visual Feedback Targeting Increased Peak Propulsive Horizontal Force***Janet Zhang-Lea (United States)***16:15–16:18** | Q&A**16:18–16:26** | OA20-04**Musical Feedback for Medial Knee Load Reduction: Translational Evidence***Luisa Cedin (United States)***16:26–16:29** | Q&A**16:29–16:37** | OA20-05**Insole-Delivered Forefoot Plantar Force Biofeedback Improves Propulsion in Individuals with Post-Stroke Hemiparesis***Nicole K. Rendos (United States)***16:37–16:40** | Q&A**16:40–16:48** | OA20-06**Effectiveness of Wearable Device-Assisted Gait Retraining in Female Runners with Patellofemoral Pain: A Randomized Controlled Trial***Hao-Nan Wang (China)*

16:48–16:51 | Q&A

OA21– Spine and Upper Body Joint Motion

15:45–16:45 | West 110

Track: Musculoskeletal Biomechanics: Joints and Motion

Chair(s): Emily Lalone (Canada), Lennart Scheys (Belgium)

15:45–15:57 | OA21-01

Biomarkers for wrist pathology based on dynamic CT imaging

Kristin Zhao (United States)

15:57–16:00 | Q&A

16:00–16:08 | OA21-02

Evaluating Automated Correspondence Approaches for the Scapula using Ground Truth Homologous Landmarks

Michael Rainbow (Canada)

16:08–16:11 | Q&A

16:11–16:19 | OA21-03

Robot-Assisted Active Shoulder Simulator

Alina Albert (Germany)

16:19–16:22 | Q&A

16:22–16:30 | OA21-04

Muscle Loading Ratios for Scapular Plane Elevation: Preliminary Results of an In-Vitro Active Shoulder Motion Simulator

Lea-Marie Ocker (Germany)

16:30–16:33 | Q&A

16:33–16:41 | OA21-05

Dynamic Imaging of the Wrist: Anatomical Shape Variations Do Not Affect Kinematic Parameter Extraction

Maranda Haenen (Netherlands)

16:41–16:45 | Q&A

OA22 – Bioinspired Design and Physics-Informed Machine Learning

15:45–16:45 | West 223-224

Track: Emerging Areas

Chair(s): Farshid Ghezalbash (Canada), Lyndia Wu (Canada)

15:45–15:57 | OA22-01

Bioinspired Materials and Structures for Musculoskeletal Implants

Zhihui Qian (China)

15:57–16:00 | Q&A

16:00–16:08 | OA22-02

Designing Biomimetic Scaffolds for Bone Tissue Engineering through Machine Learning and Computational Simulation

Yujie Zhang (Hong Kong)

16:08–16:11 | Q&A

16:11–16:19 | OA22-03

CEINMS-WEB: A Web-based Application for Ultra Rapid Calibration of Neuromusculoskeletal Models

Claudio Pizzolato (Australia)

16:19–16:22 | Q&A

16:22–16:30 | OA22-04

A Physics-Informed Federated Learning Approach to Decomposing Bilateral Ground Reaction Forces and Moments from A Single Forceplate for Gait Analysis

Cheng-Hao Yu (Taiwan)

16:30–16:45 | Q&A

OA23 – In Vivo Spine Biomechanics

15:45–16:45 | West 217-219

Track: Orthopaedic Biomechanics: Spine

Chair(s): Gunter Siegmund (United States), Ruth Wilcox (United Kingdom)

15:45–15:57 | OA23-01

In Vivo Spine Kinematics Using Biplane Radiography

William Anderst (United States)

15:57–16:00 | Q&A

16:00–16:08 | OA23-02

Kinematic Constraints Fail to Capture In Vivo Intervertebral Motion Patterns in Adult Spinal Deformity and Healthy Individuals

Birgitt Peeters (Belgium)

16:08–16:11 | Q&A

16:11–16:19 | OA23-03

Using Lumbar Spine Intervertebral Motion Sharing as a Kinematics Biomarker for Classifying Individuals with Chronic Low Back Pain

Clarissa LeVasseur (United States)

16:19–16:22 | Q&A

16:22–16:30 | OA23-04

Guiding Spine Flexion and Restricting Pelvic Movement During Flexion and Extension Tasks Has the Potential to Affect Lumbopelvic Kinematics

Mona Frey (Canada)

16:30–16:33 | Q&A

16:33–16:41 | OA23-05

Time-Dependent In Vivo Changes in Spinal Motion After Nucleotomy: Hypermobility or Hypomobility?

Marcel Simon Reich (Germany)

16:41–16:45 | Q&A

OA24 – AI & Computational Modeling

15:45–16:45 | West 221-222

Track: Orthopaedic Biomechanics: Upper Extremities

Chair(s): Jaclyn Chopp-Hurley (Canada), Maxence Lavaill (Australia)

15:45–15:57 | OA24-01

Subject-specific Shoulder Variability and Personalized Simulations for Orthopaedic Applications

Eva Herbst (Switzerland)

15:57–16:00 | Q&A

16:00–16:08 | OA24-02

Finite Element Analysis of the Biomechanical Interaction Between the Thumb and Carpal Tunnel

David Jordan (United States)

16:08–16:11 | Q&A

16:11–16:19 | OA24-03

Personalized Shoulder Musculoskeletal Modeling: A Novel Workflow for Investigations of Glenohumeral Osteoarthritis and Post-Arthroplasty Joint Reaction Loads

Line Ven (Belgium)

16:19–16:22 | Q&A

16:22–16:30 | OA24-04

Relationships between Pain and Glenohumeral Joint Motion and Loading Across Pediatric and Adult Manual Wheelchair Users

Alyssa Schnorenberg (United States)

16:30–16:33 | Q&A

16:33–16:41 | OA24-05

Bi-Fluoroscopy-Informed Machine Learning for Scapula Tracking in Reverse Shoulder Arthroplasty

Maxence Lavaill (Australia)

16:41–16:45 | Q&A

OA25 – Life Support Systems/Devices

15:45–16:45 | West 220

Track: Imaging and Biomedical Devices: Artificial Organs, Devices

Chair(s): Lisa Prah Wittberg (Sweden), Emanuele Vignali (Italy)

15:45–15:57 | OA25-01

PEDIAFLOW™ Miniature Maglev Heart-Assist Device for Infants and Young Children

Rugveda Thanneeru (United States)

15:57–16:00 | Q&A

16:00–16:08 | OA25-02

Event-Based Image Velocimetry as Alternative to Particle Image Velocimetry for the Experimental Fluid Dynamic Evaluation of Mitral Valve Prostheses

Elena Torta (Italy)

16:08–16:11 | Q&A

16:11–16:19 | OA25-03

A Validated PIV–CFD Framework for Quantifying Hemodynamic Changes Induced by Left Atrial Appendage Occlusion

Emanuele Gasparotti (Italy)

16:19–16:22 | Q&A

16:22–16:30 | OA25-04

Patient-Specific Pediatric Right Heart Simulator for Pulmonary Valve Assessment Using MRI

Lorenzo Ferrari (United States)

16:30–16:33 | Q&A

16:33–16:41 | OA25-05

Set-Up and Interim Results of the PODRACING Trial: A Randomized Controlled Trial to Evaluate Our Renal Perfusion Model During Robot-Assisted Partial Nephrectomy

Saar Vermijs (Belgium)

16:41–16:45 | Q&A

OA26 – Cilia and Flagella**15:45–16:45** | West 208-209**Track: Micro/Biofluidics: In Silico Models and Simulation***Chair(s): Daisuke Takagi (United States), Naoki Takeishi (Japan)***15:45–15:57** | OA26-01**Nonlinear Phenomena in Bacterial Turbulence Under Imposed Background Flows***Kenji Kikuchi (Japan)***15:57–16:00** | Q&A**16:00–16:12** | OA26-02**Measurement of Bending Stiffness of Salmonella Flagella***Henry Fu (United States)***16:12–16:15** | Q&A**16:15–16:23** | OA26-03**Ciliary Pumping in the Choanocyte Chambers of Sponges***Takuji Ishikawa (Japan)***16:23–16:26** | Q&A**16:26–16:34** | OA26-04**Multiphysics In Silico Modeling of Acoustofluidics and Molecular Transport at the Inner Ear–brain Interface: A Multiparametric Analysis of Cochlear Fluids–CSF Dynamics in the Cochlear and Vestibular Aqueducts***Simone Perotoni (Italy)***16:34–16:45** | Q&A

Opening Ceremony Featuring Rick Hansen

17:00–17:45 | West Ballroom A

- Welcome Remarks
- Opening Speech
Rick Hansen (Canada)

KN01 – Applications of Sports Injury Prevention and Performance through Biomechanics and Data Analytics

17:45–18:30 | West Ballroom A

17:45–18:15 | KN01-01
Applications of Sports Injury Prevention and Performance through Biomechanics and Data Analytics
Jeff Crandall (United States)

18:15–18:30 | Q&A

Welcome Reception

18:30–20:00 | Exhibit Hall–West Ballroom BCD

Light Snacks and Drinks Provided

Featuring WCB’s Got Talent Performances:

- 19:00 Cameron Jensen, USA
- 19:10 Claudia Kacmarcik, USA
- 19:20 Lise Worthen-Chaudhari, USA
- 19:30 Phoebe Cheung, New Zealand

- Piano Performance
- Contemporary Dance Performance
- Argentine Tango Performance –
Audience Participation Encouraged
- Piano Performance

Program

SUNDAY, July 12

Fun Run (Limited Capacity, Sign Up Required)

07:00–07:40 | Meeting Point: Vancouver Convention Centre, West Building, Burrard Street Entrance, Under the Globe

PL01 – Engineering Surgeries for Congenital Heart Disease

08:30–09:15 | West Ballroom A

Track: Cardiovascular/Cardiorespiratory Biomechanics: Methods, Models and Applications

Chair(s): Stéphane Avril (France), Silvia Blemker (United States)

08:30–09:00 | PL01-01

Engineering Surgeries for Congenital Heart Disease

Alison Marsden (United States)

09:00–09:15 | Q&A

PL02 – Material-Driven In-Situ Cardiovascular Regeneration: A Mechanobiological Perspective

08:30–09:15 | West 211-214

Track: Tissue Engineering: Mechanobiology

Chair(s): Thomas Franz (South Africa), Bernardo Innocenti (Belgium)

08:30–09:00 | PL02-01

Material-Driven In-Situ Cardiovascular Regeneration: A Mechanobiological Perspective

Carlijn Bouten (Netherlands)

09:00–09:15 | Q&A

OA27 – Neurologic Medicine–Cerebral Palsy**09:30–10:40** | West Ballroom A**Track: Clinical Biomechanics***Chair(s): Claudio Pizzolato (Australia), Marjolein van der Krogt (Netherlands)***09:30–09:38** | OA27-01**Impacts of Transcutaneous Spinal Cord Stimulation on Muscle Activity and Heart Rate Responses During Walker-Based Exoskeleton Use in Children With Cerebral Palsy***Katie M. Landwehr-Prakel (United States)***09:38–09:41** | Q&A**09:41–09:49** | OA27-02**Comparing Split Belt Treadmill Adaptation Rates Between Children with Cerebral Palsy and Typically Developing Peers Using Bayesian Models***Mackenzie Pitts (United States)***09:49–09:52** | Q&A**09:52–10:01** | OA27-03**Examining the Effects of Selective Dorsal Rhizotomy on Kinematics and Synergistic Muscle Activity During Gait in Individuals with Cerebral Palsy***Amanda L. Vinson (United States)***10:01–10:04** | Q&A**10:04–10:12** | OA27-04**Children with Unilateral Spastic Cerebral Palsy Have Smaller and Weaker Distal Tibias in the Spastic Limb Compared to the Non-Spastic Limb Independent of Physical Activity Habits***Kellen Krajewski (United States)***10:12–10:15** | Q&A**10:15–10:23** | OA27-05**Mediolateral Forces and Walking Stability in Children with Cerebral Palsy***Allyson Clarke (United States)***10:23–10:26** | Q&A**10:26–10:34** | OA27-06**Active and Passive Force Variability Between Gracilis and Adductor Longus Muscle Fibres From Children With Cerebral Palsy***Faizan Syed (Canada)***10:34–10:40** | Q&A

OA28 – Improving Our Methods 1: Measuring Muscle-Tendon Dynamics During Gait

09:30–10:30 | West 211-214

Track: Human Motion and Performance: Locomotion/Gait

Chair(s): Stephen Piazza (United States), Vickie Shim (New Zealand)

09:30–09:42 | OA28-01

4D Ultrasound Measurements of Contracting Skeletal Muscles Inform and Validate 3D Muscle Mechanics

Oliver Roehrl (Germany)

09:42–09:45 | Q&A

09:45–09:53 | OA28-02

Sex-specific Effects of Load Carriage and Locomotion Speed on Achilles Tendon Loading

Charles Minerd (United States)

09:53–09:56 | Q&A

09:56–10:04 | OA28-03

Effect of an Ankle Assistive Device With Printed Textile-Based Motion Sensing Suit on Muscle Activation During Walking: A Pilot Study

Minyoung D. Cho (Korea, Republic of)

10:04–10:07 | Q&A

10:07–10:15 | OA28-04

Determinants of Enhanced Propulsive Capacity When Walking With Powered Ankle Exoskeleton Assistance

Ethan Simaitis (United States)

10:15–10:18 | Q&A

10:18–10:26 | OA28-05

Running With an Exotendon: Biomechanical Insights Into Metabolic Savings Across Running Speeds

Olivia Felton (United States)

10:26–10:30 | Q&A

OA29 – Upper Extremity**09:30–10:30** | West 301**Track: Human Motion and Performance: Sports***Chair(s): Missy Morrow (United States), Kayla Pariser (United States)***09:30–09:42** | OA29-01**Advances in Biomechanics in Racket Sports***Mark King (United Kingdom)***09:42–09:45** | Q&A**09:45–09:53** | OA29-02**Wrist Biomechanics During Handstands: Effect of Wrist Position on the Soft Tissues***Mercedes Aramayo Gomes Rezende (United Kingdom)***09:53–09:56** | Q&A**09:56–10:04** | OA29-03**Scapulo- and Humerothoracic Kinematics of a Simulated Volleyball Spike Using Biplane Videoradiography***Aaron Hellem (United States)***10:04–10:07** | Q&A**10:07–10:15** | OA29-04**Modulation of Rein Tension and Rider's Elbow Joint Angle in Show Jumping***Nolwenn Regnault (France)***10:15–10:18** | Q&A**10:18–10:26** | OA29-05**Trunk and Arm Coordination in the Wheelchair Tennis Serve Across Athletes With Varied Abilities***Hannah Houde (United States)***10:26–10:30** | Q&A

OA30 – Cardiac Biomechanics #1**09:30–10:30** | West 302-305**Track: Cardiovascular/Cardiorespiratory Biomechanics: Methods, Models and Applications***Chair(s): Kerem Pekkan (United States), Sandra Loerakker (Netherlands)***09:30–09:42** | OA30-01**Fractional Viscoelastic Modeling for the Heart and Arteries***David Nordsletten (United States)***09:42–09:45** | Q&A**09:45–09:53** | OA30-02**Personalized Cardiac Mechanics: Evaluating Diffusion Tensor Imaging and Rule-Based Methods for Cardiomyocyte Orientation***Devin Seyler (United States)***09:53–09:56** | Q&A**09:56–10:04** | OA30-03**4D-Flow MRI Measurements and Computational Analyses of Pulsatile Cerebrospinal Fluid Flow in the Human Third Ventricle***Fuga USHIO (Japan)***10:04–10:07** | Q&A**10:07–10:15** | OA30-04**A Computational Fluid Dynamics Study of Human and Porcine Hearts: Implications for Cardiac Xenotransplantation***Chanikya Valeti (Ireland)***10:15–10:18** | Q&A**10:18–10:26** | OA30-05**Simulation of Purkinje-Mediated Left Bundle Branch Block and Cardiac Resynchronization Therapy***Sandra Hager (United States)***10:26–10:30** | Q&A

OA31 – Statistical Shape Modeling in Musculoskeletal Biomechanics

09:30–10:40 | West 202-204

Track: Musculoskeletal Biomechanics: Methods, Models and Applications

Chair(s): Geoffrey Handsfield (United States), Silvia Blemker (United States)

09:30–09:38 | OA31-01

Integrating Paediatric Statistical Shape and Density Model Prediction to in Silico Finite Element Modelling of the Femur and Tibia

Julie Choisine (New Zealand)

09:38–09:41 | Q&A

09:41–09:49 | OA31-02

An Automated Pipeline for Paediatric Musculoskeletal Model Development Utilising Articulated Statistical Shape Modelling and OpenSim

Julie Choisine (New Zealand)

09:49–09:52 | Q&A

09:52–10:00 | OA31-03

Automated Statistical Shape Modelling of the L4-L5 Functional Spinal Unit for Population-based Computational Studies

Sherif Zantiba (United Kingdom)

10:00–10:03 | Q&A

10:03–10:11 | OA31-04

Effect of Shoulder Bone Shape on Glenohumeral Joint Forces: A Population-Based Analysis

Maxence Lavaill (Australia)

10:11–10:14 | Q&A

10:14–10:22 | OA31-05

Sensitivity of Knee Contact Mechanics to Statistical Cartilage Thickness Models Derived From a Single and Multiple Imaging Modalities

Roberto Leonardo Diaz (United Kingdom)

10:22–10:25 | Q&A

10:25–10:33 | OA31-06

Sex Differences in Ankle Muscle Morphology Revealed Through MRI-Derived Statistical Shape Models

Mario E. Garcia (United States)

10:33–10:40 | Q&A

OA32 – Experimental Modeling of Injury II**09:30–10:40** | West 205-207**Track: Injury Biomechanics***Chair(s): Dale Bass (United States), Ahmed Alshareef (United States)***09:30–09:38** | OA32-01**Fall Experiments from Stepladders Using a Hybrid III Pedestrian Dummy***Hiroki Takahashi (Japan)***09:38–09:41** | Q&A**09:41–09:49** | OA32-02**Novel Direct Assessment of Bulk Fracture Propagation Speed in Bone***Souren Moradi (United States)***09:49–09:52** | Q&A**09:52–10:00** | OA32-03**In-Vivo Imaging of Harmonic Brain Motion Correlates Head Rotation With Increased Mechanical Vulnerability of the Adolescent and Adult Human Brain***Ruth Okamoto (United States)***10:00–10:03** | Q&A**10:03–10:11** | OA32-04**Apparent Shear Softening Present in Ex Vivo Bovine Brain Tissue Captured with MR Elastography***Olivia Bailey (United States)***10:11–10:14** | Q&A**10:14–10:22** | OA32-05**Video Analysis of Human Lateral Head Impacts Reveals Muscle Co-Contraction Reduces Head Excursion Relative to Torso***Pawel Kudzia (Canada)***10:22–10:25** | Q&A**10:25–10:33** | OA32-06**Poroelectric Inversion of the Human Brain at 3T Using Amplified MRI***Tyson Lam (United States)***10:33–10:40** | Q&A

OA33 – Neuromechanics in Wearable Exoskeletons**09:30–10:40** | West 109**Track: Rehabilitation Biomechanics and Human Factors: Rehabilitation***Chair(s): Aaron Young (United States), Guillaume Durandau (Canada)***09:30–09:38** | OA33-01**Multi-day Co-adaptation of Ankle Exoskeleton Assistance for Poststroke Gait***Tara Kimiavi (United States)***09:38–09:41** | Q&A**09:41–09:49** | OA33-02**Effects of Backpack Loads on Bone Mechanical Stimulus in Persons with Spinal Cord Injury during Exoskeletal-assisted Walking: A Simulation Study***Gabriela B. De Carvalho (United States)***09:49–09:52** | Q&A**09:52–10:00** | OA33-03**Biological Ankle Mechanics During Walking with an Ankle Exoskeleton and Limb Angle Feedback in Individuals with Chronic Stroke***Steven Thompson (United States)***10:00–10:03** | Q&A**10:03–10:11** | OA33-04**Back Exosuits Enhance Physical Therapy Outcomes Improving Recovery From LBP***D. Adam Quirk (United States)***10:11–10:14** | Q&A**10:14–10:22** | OA33-05**3D-Printed Tunable Stiffness Chain-Mail Fabric With a Data-Driven Model Enabling Inverse Design for Rehabilitation and Assistive Devices***Jiawen Xu (United Kingdom)***10:22–10:25** | Q&A**10:25–10:33** | OA33-06**Hip Exoskeleton Contributions to Leg Swing Initiation During Walking for Individuals Post-Stroke***Kristen Stewart (United States)***10:33–10:40** | Q&A

OA34 – Functional Loading and Mechanics of the Lower Extremity**09:30–10:30** | West 110**Track: Musculoskeletal Biomechanics: Joints and Motion***Chair(s): Maurice Mohr (Austria), Basilio Goncalves (Austria)***09:30–09:42** | OA34-01**Gait Retraining in KOA–What Is in a Name?***Ilse Jonkers (Belgium)***09:42–09:45** | Q&A**09:45–09:53** | OA34-02**CT-Based Workflow to Generate Subject-Specific Articular Cartilage Models***Nancy Kim (New Zealand)***09:53–09:56** | Q&A**09:56–10:04** | OA34-03**A Biomechanical Assessment of a Two-Foot Vertical Jump at Baseline, 6-month and 12-month following Return to Play from ACL Reconstruction***Pratham Singh (Canada)***10:04–10:07** | Q&A**10:07–10:15** | OA34-04**Walking With Enhanced Ankle Plantarflexor Muscle Leverage Modulates Muscle Neuromechanics in Older Adults***Daniel Davis (United States)***10:15–10:18** | Q&A**10:18–10:26** | OA34-05**Longitudinal Analysis of Hip Joint Contact Pressure in Growing Children using Subject-Specific Multi-Scale In-Silico Simulations***Kevin Kitir (Austria)***10:26–10:30** | Q&A

OA35 – AI and Machine Learning for Biomechanics**09:30–10:30** | West 223-224**Track: Emerging Areas***Chair(s): Bernardo Innocenti (Belgium), Birgitt Peeters (Belgium)***09:30–09:42** | OA35-01**From Patient-Reported Outcomes to Prediction: What we Measure, What we Model and what we Trust***Francine Mariaux (Switzerland), Andrea Cina (Switzerland)***09:42–09:45** | Q&A**09:45–09:53** | OA35-02**Graph Neural Network Surrogates for Finite Element Modeling of Femur Mechanics: A Comparative Study***Jérôme Noailly (Spain)***09:53–09:56** | Q&A**09:56–10:04** | OA35-03**Sensor-less Prediction of Posture-Specific Peak Interface Pressures from Anthropometry Using Machine Learning***Seohyun Lee (Korea, Republic of)***10:04–10:07** | Q&A**10:07–10:15** | OA35-04**Generating Physically Realistic Footwear Contact Pressure Distributions with Diffusion Models***Gerard Aristizábal Pla (United States)***10:15–10:18** | Q&A**10:18–10:26** | OA35-05**Development of a Novel Neural Network-Based Approach for Estimating Ground Reaction Forces From Kinematic Data in Gait Analysis***Giulio Rigoni (Italy)***10:26–10:30** | Q&A

OA36 – In Vitro Spine Biomechanics

09:30–10:40 | West 217-219

Track: Orthopaedic Biomechanics: Spine

Chair(s): Ruth Wilcox (United Kingdom), Jill Middendorf (United States)

09:30–09:38 | OA36-01

An Experimental Framework for Measuring Trabecular Bone Strains Surrounding Pedicle Screws

Léa Slive (Canada)

09:38–09:41 | Q&A

09:41–09:49 | OA36-02

Pre-Clinical Mechanical Evaluation of Anatomically and Mechanically Conforming Patient-Specific Spinal Fusion Cages Designed by Full-Scale Topology Optimization

Xiaoyu Du (Switzerland)

09:49–09:52 | Q&A

09:52–10:00 | OA36-03

Hyperhydration and Endplate-Annulus Disintegrty Provoke Cervical Disc Herniation—An In Vitro Study

Christian Liebsch (Germany)

10:00–10:03 | Q&A

10:03–10:11 | OA36-04

Mechanical Loading Affects the Swelling Behavior of the Intervertebral Disc—An In Vitro Study

Christian Liebsch (Germany)

10:11–10:14 | Q&A

10:14–10:22 | OA36-05

Post-fusion Facet Biomechanics are Influenced by Disc Degeneration and Facet Anatomy: Insights from Experimental and Computational Modelling of Cadaveric Human Lumbar Segments

Marlene Mengoni (United Kingdom)

10:22–10:25 | Q&A

10:25–10:33 | OA36-06

Process-Driven Mechanical Tuning of 3D Printed Foaming Thermoplastic Polyurethane for Age-Specific Cervical Intervertebral Disc Modelling

Rajan S. Vraitch (United Kingdom)

10:33–10:40 | Q&A

OA37 – Imaging, Sensing & Measurement Technologies**09:30–10:30** | West 221-222**Track: Orthopaedic Biomechanics: Upper Extremities***Chair(s): Angelica Lang (Canada), Kirk McGilvray (United States)***09:30–09:42** | OA37-01**Assessing Structure and Function of Rotator Cuff Muscle After Injury and Repair***Meghan E. Vidt (United States)***09:42–09:45** | Q&A**09:45–09:53** | OA37-02**Defining New Carpal Bone Anatomical Reference Systems Optimized for Kinematic Description***Daniel McDermott (United States)***09:53–09:56** | Q&A**09:56–10:04** | OA37-03**Dual Dysfunction: Central and Peripheral Factors of Recovery in Rotator Cuff Tendinopathy***Lori Michener (United States)***10:04–10:07** | Q&A**10:07–10:15** | OA37-04**Co-Contraction Patterns of Forearm Muscles During Cylindrical Grasp Differ Between People With Hand Osteoarthritis and Healthy Individuals***Mahdi Mohseni (United Kingdom)***10:15–10:18** | Q&A**10:18–10:26** | OA37-05**Assessing Shoulder Pain-Related Range of Motion Limitations with Markerless Motion Capture***Vienna Liu (United States)***10:26–10:30** | Q&A

OA38 – Organoids and Organs-on-a-Chip**09:30–10:30** | West 220**Track: Imaging and Biomedical Devices: Artificial Organs, Devices***Chair(s): Lorenzo Ferrari (United States), Elena Torta (Italy)***09:30–09:42** | OA38-05**Modeling the Veno-Arterial ExtraCorporeal Membrane Oxygenation system: How Far is the Real World Clinical Horizon?***Emanuele Vignali (Italy)***09:42–09:45** | Q&A**09:45–09:53** | OA38-01**An Actuated Encapsulation Implant for Cell Therapy***Eimear Dolan (Ireland)***09:53–09:56** | Q&A**09:56–10:04** | OA38-02**Experimental Validation of a Mechanically Intelligent Bone Anchor***Tyler R. Clites (United States)***10:04–10:07** | Q&A**10:07–10:15** | OA38-03**A Versatile Bioreactor Enabling Perfusion and Mechanical Stimulation of 3D Scaffolds: Design, CFD Assessment, and In Vitro Validation***José I. Contreras Raggio (Chile)***10:15–10:18** | Q&A**10:18–10:26** | OA38-04**Impact on Thrombus Morphology by Local Flow Structures in Extracorporeal Membrane Oxygenation Circuits Evaluated Using X-Ray Scattering, Electron Microscopy and Computational Fluid Dynamics***Lisa Prah Wittberg (Sweden)***10:26–10:30** | Q&A

OA39 – Microcirculation**09:30–10:30** | West 208-209**Track: Micro/Biofluidics: In Silico Models and Simulation***Chair(s): Henry Fu (United States), Chenjun Wu (Italy)***09:30–09:42** | OA39-01**Numerical-Experimental Estimation Spanning Single Red Blood Cell Dynamics to Bulk Suspension Rheology***Naoki Takeishi (Japan)***09:42–09:45** | Q&A**09:45–09:57** | OA39-02**The Effect of Vessel Curvature on Flow Patterns of Red Blood Cells***Yu Terada (Japan)***09:57–10:00** | Q&A**10:00–10:08** | OA39-03**Beyond Blood Flow: Combined Use of CFD and DOE to Predict Microsphere Distribution***Marta Gutiérrez de San Miguel (Spain)***10:08–10:11** | Q&A**10:11–10:19** | OA39-04**In Vitro and In Silico Study of Red Blood Cell Deformation in a Microfluidic Sudden Expansion***Hannah Palahnuk (United States)***10:19–10:30** | Q&A

Coffee Break and Poster Viewing Day 1 (Poster Presenters in Attendance)

10:30–11:30 | Exhibit Hall–West Ballroom BCD

Locations are referenced as you enter the Exhibit Hall



GREEN– Foyer Outside Entrance to Exhibit Hall

Biomechanics Education, Knowledge Translation and Outreach

Row 1 • P1-001–P1-005

Cell Biomechanics: Mechanobiology

Rows 1–4 • P1-006–P1-031

Cell Biomechanics: Methods and Models

Rows 4–5 • P1-032–P1-043

Human Motion and Performance: Balance, Posture and Control

Rows 5–9 • P1-044–P1-096

Human Motion and Performance: Locomotion/Gait

Rows 9–10 • P1-097–P1-116



RED–Right Wall

Human Motion and Performance: Locomotion/Gait

Rows 11–34 • P1-117–P1-164



BLUE–Back Wall in the Center

Human Motion and Performance: Locomotion/Gait

Rows 35–42 • P1-165–P1-244



YELLOW–Left Side by the Windows and the Product Theater

Human Motion and Performance: Locomotion/Gait

Row 43 • P1-245–P1-249

Human Motion and Performance: Sports

Rows 43–56 • P1-250–P1-387

Micro/Biofluidics: Experiments

Rows 56–57 • P1-388–P1-398

Micro/Biofluidics: In Silico Models and Simulation

Row 57 • P1-399–P1-403

AMTI Product Theater**10:45–11:00** | Product Theater–Exhibit Hall

Join AMTI for an exclusive first look at our newest advancement in force measurement technology. Designed to support the evolving needs of biomechanists, clinicians, sports performance professionals, and researchers, this new development marks a significant step forward in precision, performance, and technological capability. Be among the first to see AMTI's latest product and learn how it can elevate your biomechanical testing.

ES6 – Bringing Biomechanics to the People: Field-Based Measurement Across Contexts, Communities, and Populations**11:30–12:30** | West 215-216**Track: Biomechanics Education, Knowledge Translation and Outreach****11:30–11:35** | Introduction / Problem Framing*Jaime Roper (United States)***11:35–12:15** | Presentations (8 minutes each)**ES6-01 Introduction and Problem Framing: Analyzing Gait and Balance in the Deep South***Jaimie Roper (United States)***ES6-02 Bringing Biomechanics to Work: Field-Based Upper Extremity Assessment in Occupational and Agricultural Populations***Angelica Lang (Canada)***ES6-03 From Lab to Clinic: Practical Insights and Lessons Learned From Assessing Movement in Essential Tremor and Dementia***Jason Franz (United States)***ES6-04 Community Engagement Through Public Data Collection***Rachel Hawe (United States)***ES6-05 Bringing Biomechanics to the People: Field-Based Measurement Across Contexts, Communities and Populations***R. James Contton (United States)***12:15–12:30** | Open Panel Discussion, Q&A, and Closing Remarks

OA40 – Neurodegenerative Medicine – Alzheimer's and Other Dementias

11:30–12:30 | West Ballroom A

Track: Clinical Biomechanics

Chair(s): Reed Gurchiek (United States), Feng Yang (United States)

11:30–11:42 | Leading Speaker Presentation

What Role can Biomechanics Serve in Neurodegenerative Medicine?

Jenna Yentes (United States)

11:42–11:45 | Q&A

11:45–11:53 | OA40-01

**Effect of Aging and Beta-Amyloid Deposition on Movement Variability during
Single- and Dual-Task Walking**

Lisa Zukowski (United States)

11:53–11:56 | Q&A

11:56–12:04 | OA40-02

**Longitudinal Changes in Walking Speed Reserve May Be an Indicator of pTau and
Amyloid Beta Changes: A Pilot Study**

John Tebbetts (United States)

12:04–12:07 | Q&A

12:07–12:15 | OA40-03

**Dementia with Lewy Bodies Worsens Reactive Responses to Walking Balance
Perturbations Compared to Older Adult Controls**

Emily Eichenlaub (United States)

12:15–12:18 | Q&A

12:18–12:26 | OA40-04

**The Effects of Mild Cognitive Impairment on Kinematic and Neuromuscular
Responses to Novel Slip-Like and Trip-Like Perturbations During Walking**

Jessica Pitts (United States)

12:26–12:30 | Q&A

OA41 – Improving Our Methods 2: Personalization of Neuro-Musculo-Skeletal-Joint Models for Gait Analysis

11:30–12:30 | West 211-214

Track: Human Motion and Performance: Locomotion/Gait

Chair(s): Silvia Blemker (United States)

11:30–11:42 | OA41-01

AI-Assisted Prediction of Knee Cartilage Mechanics in Gait as Biomarkers for Knee OA Progression

Amir Esrafilian (United States)

11:42–11:45 | Q&A

11:45–11:53 | OA41-02

Predictive Neuromechanical Simulation Explains Gait Biomechanics in Obesity

Vincent Ton (United States)

11:53–11:56 | Q&A

11:56–12:04 | OA41-03

A Neuromusculoskeletal Digital Twin for Personalized Stroke Gait Rehabilitation

Liangliang Xiang (Sweden)

12:04–12:07 | Q&A

12:07–12:15 | OA41-04

Revisiting How We Model Psoas Geometry in Musculoskeletal Models—Implications for Simulating Walking in Duchenne Muscular Dystrophy

Ines Vandekerckhove (Belgium)

12:15–12:18 | Q&A

12:18–12:26 | OA41-05

Practical Inter-Laboratory Variations in Motion Capture Measurements and Implications for Personalized Musculoskeletal Modeling

Parham Sadeghinia (Netherlands)

12:26–12:30 | Q&A

OA42 – Field Assessment**11:30–12:40** | West 301**Track: Human Motion and Performance: Sports***Chair(s): Ali Hawkins (Canada)***11:30–11:38** | OA42-01**Cutting Technique of ACL-Reconstructed Professional Handball Players: On-Field Kinematic Assessment using IMUs***Margherita Mendicino (Italy)***11:38–11:41** | Q&A**11:41–11:49** | OA42-02**Concurrent Validation of Markerless Motion Capture Systems for Measuring Player Kinematics During Ice Hockey Skating Starts***Minori Iizuka (Canada)***11:49–11:52** | Q&A**11:52–12:00** | OA42-03**Development of a Wearable Feedback System for Wheelchair Racing Athletes: A Participatory Design Approach***Jason Bouffard (Canada)***12:00–12:03** | Q&A**12:03–12:11** | OA42-04**Concurrent Validity of Portable Inertial Sensors versus Force Plates for Assessing Countermovement and Drop Jump Kinetics in Basketball***Carlos Quintana Matoses (Spain)***12:11–12:14** | Q&A**12:14–12:22** | OA42-05**Revisiting the Illinois Agility Test as a Wheelchair Sport Coaching Assessment: Segmenting Biomechanical Approaches to Generate Actionable Insights into Athlete Performance***Jeffery Rankin (United States)***12:22–12:25** | Q&A**12:25–12:33** | OA42-06**Field-Based Biomechanical Analysis of Ski Mountaineering Using Smartphone Video and Open-Source Pose Estimation Methods***Pawel Kudzia (Canada)***12:33–12:40** | Q&A

OA43 – Cardiac Biomechanics #2

11:30–12:30 | West 302-305

Track: Cardiovascular/Cardiorespiratory Biomechanics: Methods, Models and Applications

Chair(s): Alberto Aliseda (United States), Claire Conway (Ireland)

11:30–11:42 | OA43-01

Pediatric Cardiovascular Mechanics: Insights on Growth, Elastic Waves, and Vortices for Surgical Planning

Kerem Pekkan (United States)

11:42–11:45 | Q&A

11:45–11:53 | OA43-02

Patient-Specific Multiphysics Modeling for Accurate Recapitulation of Patent Ductus Arteriosus Stenting Interventions

Luis Rene Mata Quinonez (United States)

11:53–11:56 | Q&A

11:56–12:04 | OA43-03

Influence of Inherent and Exercise-Induced Aerobic Capacity on Cardiac Structure and Function in a Rat Obesity Model

Dhairya Desai (Canada)

12:04–12:07 | Q&A

12:07–12:15 | OA43-04

Computational Framework for Studying Myocardial Bridging

Giuseppe De Nisco (Italy)

12:15–12:18 | Q&A

12:18–12:26 | OA43-05

Computational Fluid Dynamics Validation of Left Atrial Hemodynamics Incorporating Physiological Wall Motion and Occluder Device Conditions

Manal Barrouhou (Spain)

12:26–12:30 | Q&A

OA44 – Morphology and Anthropometry in Human Biomechanics**11:30–12:40** | West 202-204**Track: Musculoskeletal Biomechanics: Methods, Models and Applications***Chair(s): Koren Roach (Canada), Eline van der Kruk (Netherlands)***11:30–11:38** | OA44-01**Comparing Ex Vivo MRI and Dissection Methodology to Derive Muscle Parameters for Musculoskeletal Models: The Impact of Fixation and Dehydration***Iris van Kan (Netherlands)***11:38–11:41** | Q&A**11:41–11:49** | OA44-02**An “Uplifting” Exploration: What Global or Local Anthropometry Best Predicts Pelvic Floor Muscle Volume?***Amanda Knizley (United States)***11:49–11:52** | Q&A**11:52–12:00** | OA44-03**Influence of Pelvis and Femur Morphology on Hip and Knee Joint Loading***Ekaterina Stansfield (Austria)***12:00–12:03** | Q&A**12:03–12:11** | OA44-04**An Anatomy Based Technique For Predicting Knee Natural Motion***Lorenzo Capetta (Italy)***12:11–12:14** | Q&A**12:14–12:22** | OA44-05**Estimating the Patient-Specific Gravitational Loads Acting on the Spine***Benedikt Schlager (Germany)***12:22–12:25** | Q&A**12:25–12:33** | OA44-06**Prediction of Adult Foot Bones Through Statistical Shape Modelling***Michael Oborn (New Zealand)***12:33–12:40** | Q&A

OA45 – Computational Modeling of Injury I**11:30–12:30** | West 205-207**Track: Injury Biomechanics***Chair(s): Jingwen Hu (United States), Xiaogai Li (Sweden)***11:30–11:42** | OA45-01**From Impacts to Injury: Digital Twin Brain Models Informed by Diffusion MRI and Wearable Sensors***Vickie Shim (New Zealand)***11:42–11:45** | Q&A**11:45–11:53** | OA45-02**A Support Vector Machine Regression Model for Rapid Predictions of ACL Forces Based on Finite-Element Knee Simulations.***Maximilian Ebenbichler (Austria)***11:53–11:56** | Q&A**11:56–12:04** | OA45-03**Computational Model Distinguishes Mechanical Injury- and Inflammation-Driven Temporal Protease Activity Underlying Collagen and Aggrecan Loss in Cartilage***Moustafa Hamada (Finland)***12:04–12:07** | Q&A**12:07–12:15** | OA45-04**Combined Experimental-Computational Framework for Assessing Traction Forces and Fetal Brain Deformation in Vacuum-Assisted Delivery***Estelle Pitti (Sweden)***12:15–12:18** | Q&A**12:18–12:26** | OA45-05**The Effect of Chronic Spinal Cord Compression on Spinal Cord Injury Biomechanics***Numaira Obaid (Canada)***12:26–12:30** | Q&A

OA46 – Biomechanics in Bionic Limbs**11:30–12:40** | West 109**Track: Rehabilitation Biomechanics and Human Factors: Rehabilitation***Chair(s): Tommaso Lenzi (United States), Aaron Young (United States)***11:30–11:38** | OA46-01**Effects of Agonist-Antagonist Myoneural Interface on Whole-Body Angular Momentum During Perturbed Walking Among Individuals With Transtibial Limb Loss***Kiichi Ash (United States)***11:38–11:41** | Q&A**11:41–11:49** | OA46-02**Minimally Invasive Muscle Implant Captures Greater Muscle Activation Complexity Than Surface EMG***Paige Dzenutis (United States)***11:49–11:52** | Q&A**11:52–12:00** | OA46-03**Bone-Anchored vs. Socket-Suspended Transfemoral Prosthesis Users Do Not Differ in Intact Limb Knee Mechanics***Garui Desai (United States)***12:00–12:03** | Q&A**12:03–12:11** | OA46-04**Increasing Prosthetic Limb Torque Decreases User Effort at the Cost of Symmetry in Individuals with Above-Knee Amputation during Stair Ascent***Clare Severe (United States)***12:11–12:14** | Q&A**12:14–12:22** | OA46-05**Bioinspired Peptide Therapy to Augment Skin Mechanics in Lower Limb Amputees***Jack Hayes (United Kingdom)***12:22–12:25** | Q&A**12:25–12:33** | OA46-06**Evaluating Vibrotactile Sensory Feedback During a Foraging Task: A Case Series of Three Individuals With Partial Hand Amputations***Fatima Gafoor (Canada)***12:33–12:40** | Q&A

OA47 – Knee Arthroplasty & Patellofemoral Biomechanics**11:30–12:30** | West 110**Track: Orthopaedic Biomechanics: Lower Extremities***Chair(s): Elizabeth Clarke (Australia), Kevin Deluzio (Canada)***11:30–11:42** | OA47-01**Integrating Computational and Experimental Biomechanics for Improved Surgical Planning in Pediatric Bone Tumors***Bernardo Innocenti (Belgium)***11:42–11:45** | Q&A**11:45–11:53** | OA47-02**The Effect of Alignment Variability on the Primary Fixation of Cementless Femoral TKA***Verena Helgers (Netherlands)***11:53–11:56** | Q&A**11:56–12:04** | OA47-03**How Closely Mechanical Alignment in Total Knee Arthroplasty Reproduces Normal Biomechanics: A Cohort-Based in Silico Study***Periklis Tzanetis (Netherlands)***12:04–12:07** | Q&A**12:07–12:15** | OA47-04**Quantifying the Influence of Patellar Morphology on Patellofemoral Kinematics During Active Knee Extension in Healthy Knees***Erin Teule (Netherlands)***12:15–12:18** | Q&A**12:18–12:26** | OA47-05**Total Knee Arthroplasty Implications on the Patellofemoral Joint Contact Forces***Elizabeth Clarke (Australia)***12:26–12:30** | Q&A

OA48 – Wearable Sensors, AI, and Advanced Analytics**11:30–12:30** | West 223-224**Track: Emerging Areas***Chair(s): Eni Halilaj (United States), Calvin Kuo (Canada)***11:30–11:42** | OA48-01**Wearable Sensing and AI for Concussion Detection***David Camarillo (United States)***11:42–11:45** | Q&A**11:45–11:53** | OA48-02**Can a Behavioral Foundation Model Predict Human Locomotion?***Jeonghwan Lee (United States)***11:53–11:56** | Q&A**11:56–12:04** | OA48-03**Smartphone Video-based Estimates of the Knee Extension Moment During Chair Rise Relate to MRI Measures of Muscle Function***R. Daniel Magruder (United States)***12:04–12:07** | Q&A**12:07–12:15** | OA48-04**Mind the Gaps: Robustness of DNN Ankle Joint Angle Prediction Models to Unexpected Sensor Flatlines***Ryan Pollard (United States)***12:15–12:18** | Q&A**12:18–12:26** | OA48-05**Large Movement Models: Transformer-Based Models of Individual Movement in the Real World Using Data From Consumer Headphones***Alexandra Hammerberg (United States)***12:26–12:30** | Q&A

OA49 – Computational Spine Biomechanics**11:30–12:30** | West 217-219**Track: Orthopaedic Biomechanics: Spine***Chair(s): Philippe Zysset (Switzerland), Dawn Elliot (United States)***11:30–11:42** | OA49-01**In Silico Analysis of the Functional Spinal Unit With In Vitro Validation***Marlène Mengoni (United Kingdom)***11:42–11:45** | Q&A**11:45–11:53** | OA49-02**Age-Related Changes in Spinal Load Distribution: Predictive Simulation of Active Spine Movements***Maria Hammer (Germany)***11:53–11:56** | Q&A**11:56–12:04** | OA49-03**Automated Workflow of Vertebral Finite Element Models: Impact of Coordinate Systems and Boundary Conditions on Fracture Load***Daniel Strack (Denmark)***12:04–12:07** | Q&A**12:07–12:15** | OA49-04**How Treatment Therapies Shape Mechanics in Osteoporotic Vertebral Fracture Repair: A Computational Study***Robert Johnston (Ireland)***12:15–12:18** | Q&A**12:18–12:26** | OA49-05**Multiscale Investigation of Spinal Fixation Failure Risk: The Interplay Between Global Alignment and Local Bone Properties***Sara Panero (Italy)***12:26–12:30** | Q&A

OA50 – Biofabrication in Tissue Engineering**11:30–12:30** | West 221-222**Track: Tissue Engineering: Methods, Models and Applications***Chair(s): Liesbet Geris (Belgium), Alberto Sensini (Netherlands)***11:30–11:38** | OA50-01**Two-Photon Subtractive Manufacturing of Mesoscale Porosity for Structure-Function Optimization of Electrospun Vascular Grafts***Tiffany Moreno (United States)***11:38–11:41** | Q&A**11:41–11:49** | OA50-02**Digital Light Processing (DLP) 3D Printing of β -TCP/PDLLA-co-TMC Nanocomposite Scaffolds for Bone Tissue Engineering***Yujie Zhang (Hong Kong)***11:49–11:52** | Q&A**11:52–12:00** | OA50-03**Biosourced Molecules as Photoinitiators for Light-Based 3D Printing of Tunable Biomaterials***Hailey McCoy-Munger (United States)***12:00–12:03** | Q&A**12:03–12:11** | OA50-04**Multi-Metamaterial and Region-Specific Biomimetic Auxetic Scaffolds Guide the Regeneration of the Whole Bone-Enthesis-Tendon Chain: A Multiscale In-Vitro and In-Vivo Study***Alberto Sensini (Netherlands)***12:11–12:30** | Q&A

OA51 – Microfluidics I**11:30–12:35** | West 220**Track: Micro/Biofluidics: Experiments***Chair(s): Claudio Conci (Italy), Netanel Korin (Israel)***11:30–11:42** | OA51-01**Organism-on-a-chip Models of Fibrotic Progression for Therapeutic Innovation in Cancer***Manuela Teresa Raimondi (Italy)***11:42–11:45** | Q&A**11:45–11:57** | OA51-02**A Microphysiological System to Model Transport Across the Blood-Brain Barrier and Neurodegenerative Disease***Roger D. Kamm (United States)***11:57–12:00** | Q&A**12:00–12:08** | OA51-03**Dynamic Air–liquid Interface Culture in a Milli-Fluidic Biomimetic Bioreactor for Advanced Skin Tissue Engineering***Stefano Gabetti (Italy)***12:08–12:11** | Q&A**12:11–12:19** | OA51-04**Cyclic Hypoxia Modulates Endothelial Permeability in a Microvascular Network Formed in an Oxygen-Controllable Microfluidic Device***Shohei Yanagita (Japan)***12:19–12:22** | Q&A**12:22–12:30** | OA51-05**Cancer Associated Fibroblasts and Leader Cells Drive Collective Migration of Breast Cancer Metastasis Through Chemo-Mechanical Signaling***Jessica Williamson (United States)***12:30–12:35** | Q&A

OA52 - Assistive Technologies to Support Locomotion - Part I**11:30–12:15** | West 208-209**Track: Imaging and Biomedical Devices: Assistive Technologies***Chair(s): Zimi Sawacha (Italy), Kat Steele (United States)***11:30–11:39** | OA52-02**Using Biomechanical Simulation for Generalizing and Personalizing Assistance From a Supernumerary Robotic Limb for Diverse Single-Shot Activities***Zoe Kutulakos (United States)***11:38–11:41** | Q&A**11:41–11:49** | OA52-03**Stair Walking-Mode Classification Using Minimal Biomechanically Relevant Features Optimized for Powered Prosthetic Knees***Ryan Busch (United States)***11:49–11:52** | Q&A**11:52–12:00** | OA52-04**Efficacy of a Frugal Inertial Sensor-based Motion Capture System to Quantify Upper Limb Kinematics for Remote Monitoring Rehabilitation***Apoorv Shrivastava (India)***12:00–12:03** | Q&A**12:03–12:11** | OA52-05**Designing a Lower-Limb Exoskeleton Controller to Alter the Energetics of Gait Symmetry***Tiana A. Wertelecky (Canada)***12:11–12:15** | Q&A

LM1: Lunch Meetup 1

12:30–14:00

With more than 3,000 delegates attending the Congress, it can be difficult to find others who share your research interests or professional background. These informal Lunch Meetups are designed to help you connect with people working in similar fields, exchange ideas, and start new collaborations in a relaxed setting.

Simply grab your lunch from the Convention Centre Café on Level 1 and head to the designated meeting location for your interest group. There is no formal agenda or facilitator—just a casual opportunity to meet new people with shared interests.

Meet at the Following Locations:

Location 1 | Level 1 Ocean Foyer (outside Rooms 121 & 122)

- **Biomechanics Education, Knowledge Translation and Outreach**
- **Injury Biomechanics**
- **Tissue Engineering: Methods, Models and Applications**

Location 2 | Ballroom Foyer

- **Musculoskeletal Biomechanics: Methods, Models and Applications**
- **Orthopaedic Biomechanics: Lower Extremities**
- **Orthopaedic Biomechanics: Spine**
- **Rehabilitation Biomechanics and Human Factors: Rehabilitation**

Location 3 | Room 111

- **Cardiovascular/Cardiorespiratory Biomechanics: Methods, Models and Applications**
- **Imaging and Biomedical Devices: Assistive Technologies**
- **Micro/Biofluidics: Experiments**

Location 4 | Outside Room 205

- **Clinical Biomechanics**
- **Emerging Areas**

Location 5 | Outside Room 202

- **Human Motion and Performance: Locomotion/Gait**
- **Human Motion and Performance: Sports**

LS1: The FEBio Software in Education and Training

12:45–13:45 | West 110

Track: Multi/Cross Track

12:45–12:55 | LS1-01

Teaching Experiences with FEBio at the University of Utah

Jeffrey Weiss (United States)

12:55–13:05 | LS1-02

Using FEBio for Teaching Computer Aided Design

Gerard Ateshian (United States)

13:05–13:15 | LS1-03

Integration of FEBio as an Instructional Tool of Undergraduate Courses in Biomechanics and Biotransport

Lucas Timmins (United States)

13:15–13:45 Panel Discussion

Meet the Biomechanics Experts (Sign Up Required, FULL)

12:45–13:45 | Level 2 Ocean Foyer

Join this interactive mentoring session designed to connect early-career researchers with experienced experts from academia and industry. In small-group discussions, participants will gain personalized advice on career development, research pathways, and navigating life in biomechanics. This informal setting encourages open conversation, meaningful connections, and valuable insights tailored to your career stage.

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PL03 – Modeling Fatigue Failure in Whole-Bone and Bone Tissue: Implications for the Prediction of Stress Fracture

14:00–14:45 | West Ballroom A

Track: Organ and Tissue Biomechanics

Chair(s): Salvatore Federico (Canada), Marjolein van der Meulen (United States)

14:00–14:30 | PL03-01

Modeling Fatigue Failure in Whole-Bone and Bone Tissue: Implications for the Prediction of Stress Fracture

W. Brent Edwards (Canada)

14:30–14:45 | Q&A

PL04 – Multiscale Biomechanics on Bone Morphogenesis and Adaptation by Remodeling: In Silico Experiments

14:00–14:45 | West 211-214

Track: Organ and Tissue Biomechanics

Chair(s): Ralph Muller (Switzerland), Liesbet Geris (Belgium)

14:00–14:30 | PL04-01

Multiscale Biomechanics on Bone Morphogenesis and Adaptation by Remodeling: In Silico Experiments

Taiji Adachi (Japan)

14:30–14:45 | Q&A

ES7 – Rigor, Repeatability, & FUN in Pediatric Biomechanics**15:00–16:00** | West 215-216**Track: Clinical Biomechanics****15:00–15:10** | ES7-01**Kick-Off Brainstorm***Katherine Steele (United States)***15:10–15:40** | ES7-02**Learning to Move & Moving to Learn: Quantifying Early Mobility Biomechanics***Kim Ingraham (United States)***15:10–15:40** | ES7-03**Rigor, Repeatability, & FUN in Pediatric Biomechanics***Elizabeth Codliffe (Canada)***15:10–15:40** | ES7-04**Biomechanics of Infant Product Safety: Better Methods, Better Data***Erin Mannen (United States)***15:10- 15:40** | ES7-05**Learning to Move: Translating play into quantifiable biomechanics***Mia Hoffman (United States)***15:40–16:00** | Panel Discussion & Q&A

OA53 – Neurologic Medicine–Stroke**15:00–16:00** | West Ballroom A**Track: Clinical Biomechanics***Chair(s): Lise Worthen-Chaudhari (United States), Zimi Sawacha (Italy)***15:00–15:12***Leading Speaker: James Finley (United States)***15:12–15:15** | Q&A**15:15–15:23** | OA53-01**Effects of Mirror Therapy Combined with Transcranial Direct Current Stimulation on Bimanual Coordination in Chronic Stroke: A Double-Blind Randomized Controlled Trial***Tsai-Yu Shih (Taiwan)***15:23–15:26** | Q&A**15:26–15:34** | OA53-02**Individual Baseline Factors May Predict Increased Paretic Propulsion On an Adaptive Split-belt Treadmill in People with Chronic Stroke***Rucha Kulkarni (United States)***15:34–15:37** | Q&A**15:37–15:45** | OA53-03**Stroke Survivors Retain the Ability to Harness Mediolateral Assistance to Improve Weight Transfer During Walking***Jason Tsai (United States)***15:45–15:48** | Q&A**15:48–15:56** | OA53-04**Effect of Stroke on Limb Contributions to the Lateral Center of Mass Trajectory During Walking***Grace Kellaher (United States)***15:56–16:00** | Q&A

OA54 – Improving Our Methods 3: Biomechanics Informing Artificial Intelligence for Gait Analysis

15:00–16:00 | West 211-214

Track: Human Motion and Performance: Locomotion/Gait

Chair(s): Aamna AlShehhi (United Arab Emirates), Kevin Deluzio (Canada)

15:00–15:12 | OA54-01

Physics Informed AI With Wearables for Healthcare Biomechanics in the Real-World

Sukyung (Sue) Park (Korea, Republic of)

15:12–15:15 | Q&A

15:15–15:23 | OA54-02

Toward Standardized Gait Event Detection: A Multicenter Evaluation of the Deep Learning-Based IntellEvent Algorithm

Bernhard Dumphart (Austria)

15:23–15:26 | Q&A

15:26–15:34 | OA54-03

Evaluation of Fall Risk of Elderly by Convolutional-Transformer Neural Network Using Time-Series Gait Data

Jie Mao (Japan)

15:34–15:37 | Q&A

15:37–15:45 | OA54-04

Biomechanics-Informed Energy Expenditure Estimation During Walking and Running Using a Single IMU

Jinsung Jung (Korea, Republic of)

15:45–15:48 | Q&A

15:48–15:56 | OA54-05

Detecting Slips on Ice Using Wearable Inertial Sensors: Identifying Kinematic Features for Classifying Slip Events

Davood Dadkhah (Canada)

15:56–16:00 | Q&A

OA55 – Winter**15:00–16:00** | West 301**Track: Human Motion and Performance: Sports***Chair(s): Seiji Hirose (Japan), Cecile Smeesters (Canada)***15:00–15:12** | OA55-05*Leading Speaker: Hermann Schwameder (Austria)***15:15–15:23** | OA55-01**Lower Extremity Kinematics During Ice Hockey Goaltender Stances***Margaret Harrington (Canada)***15:23–15:26** | Q&A**15:26–15:34** | OA55-02**Ground Reaction Force Characteristics During Salchow and Loop Jumps in a Novice and a Junior Figure Skater: A Case Study***Ami Koga (China)***15:34–15:37** | Q&A**15:37–15:45** | OA55-03**Kinematic Differences Across Development Levels in Elite Biathletes***Ethan Livingood (United States)***15:45–15:48** | Q&A**15:48–15:56** | OA55-04**Comparison of Fully-Rotated and Under-Rotated Figure Skating Jumps by Key Performance Metrics***Mia Caminita (United States)***15:56–16:00** | Q&A

OA56 – Cardiac Biomechanics #3**15:00–16:00** | West 302-305**Track: Cardiovascular/Cardiorespiratory Biomechanics: Methods, Models and Applications***Chair(s): Vignali Emanuele (Italy), David Nordsletten (United States)***15:00–15:12** | OA56-01**Automated Standardised Tools for Analysing Cardiac Ventricular Anatomy and Mechanical Function From 3D Echocardiography or MRI***Martyn Nash (New Zealand)***15:12–15:15** | Q&A**15:15–15:23** | OA56-02**Biventricular Heart Model with Novel Pseudo-Fluid Domains and Thermodynamically-Motivated Growth & Remodeling***Darshan Senthil (Ireland)***15:23–15:26** | Q&A**15:26–15:34** | OA56-03**Patient-Specific Investigation of Septal Repositioning Effects on Intraventricular Hemodynamics in Pediatric Dilated Cardiomyopathy***Weiru Luo (Japan)***15:34–15:37** | Q&A**15:37–15:45** | OA56-04**Modeling Cardiac Growth and Fiber Remodeling in a Finite Element model of Left Ventricular Mechanics***Britt van Kerkhof (Netherlands)***15:45–15:48** | Q&A**15:48–15:56** | OA56-05**An Integrated Experimental-Computational Approach to Modeling the Mechano-Energetic Cost of Cardiac Contractility***Emilio Mendiola (United States)***15:56–16:00** | Q&A

OA57 – Markerless Motion Analysis and Tracking Accuracy**15:00–16:10** | West 202-204**Track: Musculoskeletal Biomechanics: Methods, Models and Applications***Chair(s): Lei Li (Hong Kong), Ming Zhang (Hong Kong)***15:00–15:08** | OA57-01**Frame Alignment Improves Agreement between Marker-Based and Markerless Knee Kinematics in Children with Cerebral Palsy***Eric Dugan (United States)***15:08–15:11** | Q&A**15:11–15:19** | OA57-02**Development and Validation of a Multi-Camera Dynamic 3D Foot Scanning System for Kinematic Analysis in Flexible Flatfoot***Lei Li (Hong Kong)***15:19–15:22** | Q&A**15:22–15:30** | OA57-03**Estimating Lower Limb Joint Moments, Muscle Forces, and Joint Contact Forces from Video***Amir Esrafilian (United States)***15:30–15:33** | Q&A**15:33–15:41** | OA57-04**Quantifying Marker-Wise Kinematic Sensitivity in the Shriner Children's Gait Model Using Individual Marker Error Analysis***Grant Schwiebert (United States)***15:41–15:44** | Q&A**15:44–15:52** | OA57-05**Accuracy of Markerless Motion Capture Tibiofemoral Rotations Benchmarked Against Biplane Videoradiography***Lauren Swain (United Kingdom)***15:52–15:55** | Q&A**15:55–16:03** | OA57-06**Pelvic Tracking During Gait in Overweight and Obese Individuals***Niels Dur (Netherlands)***16:03–16:10** | Q&A

OA58 – Computational Modeling of Injury II**15:00–16:00** | West 205-207**Track: Injury Biomechanics***Chair(s): Vickie Shim (New Zealand)***15:00–15:08** | OA58-01**Representative Sampling Using Realisation-Dependent Stopping Algorithm to Quantify the Relationship Between Brain Volume, Impact Severity, and Brain Strain***Emily Yik Kwan Chan (United Kingdom)***15:08–15:11** | Q&A**15:11–15:19** | OA58-02**Subject-Specific In Silico Modeling of Brain Interstitial Fluid Transport Under Traumatic Loading***Ge He (United States)***15:19–15:22** | Q&A**15:22–15:30** | OA58-03**AI-based Positioning of Finite Element Human Body Models***Henrik Abrahamsson and Xiaogai Li. Giorgio Diena (Sweden)***15:30–15:33** | Q&A**15:33–15:41** | OA58-04**Investigating the Effects of Cerebral Atrophy and Tissue Softening on Brain Deformation Response in Older Adults***Ahmed Alshareef (United States)***15:41–15:44** | Q&A**15:44–15:52** | OA58-05**Tract Morphing: A Novel Integration of Finite Element Modelling With Diffusion MRI for White Matter Tract Analysis in Mild Traumatic Brain Injury With Multimodal Fusion***Christian John Saludar (New Zealand)***15:52–16:00** | Q&A

OA59 – Wearables for Rehabilitation Tracking

15:00–16:00 | West 109

Track: Rehabilitation Biomechanics and Human Factors: Rehabilitation

Chair(s): Jesse Charton (Canada), Ciaran Simms (Ireland)

15:00–15:08 | OA59-01

Multi-Site Wearable Ultrasound for Tracking Neuromuscular Adaptation in ACL Rehabilitation: A Pilot Study

Erica L. King (United States)

15:08–15:11 | Q&A

15:11–15:19 | OA59-02

Objective Free-Living Metrics Challenge Traditional Prosthetic Classification Standards

Sydney Lundell (United States)

15:19–15:22 | Q&A

15:22–15:30 | OA59-03

Wearable Sensor Calibration for Sports Knee Injury Rehabilitation

Rosalind Bendell (United States)

15:30–15:33 | Q&A

15:33–15:41 | OA59-04

Capturing Individual Recovery Trajectories After ACL Injury Using Principal Component-Derived Countermovement Jump Data

Tamar D. Kritzer (Canada)

15:41–15:44 | Q&A

15:44–15:52 | OA59-05

Task-Independent Continuous Prediction of Whole-Body and Segmental Balance during Multi-Terrain Ambulation Circuits

Marissa Pirritano (United States)

15:52–16:00 | Q&A

OA60 – Implant Performance: Wear, Damage, and Retrieval Analysis

15:00–16:00 | West 110

Track: Orthopaedic Biomechanics: Lower Extremities

Chair(s): Luca Cristofolini (Italy), Hans Gray (Australia)

15:00–15:12 | OA60-01

Implant Retrieval Analysis: How Can It Inform Orthopaedic Biomechanics Research

Melinda Harman (United States)

15:12–15:15 | Q&A

15:15–15:23 | OA60-02

An AO Classification-Based Virtual Testing Framework for Mechanobiological Evaluation of Tibial Shaft Fracture Healing and Fixation Strategies

Felix Scherf (Germany)

15:23–15:26 | Q&A

15:26–15:34 | OA60-03

A Computational–experimental Framework for Reproducible Biomechanical Testing Through Standardised Acetabular Defect Models in Hip Revision Arthroplasty

Carina Micheler (Germany)

15:34–15:37 | Q&A

15:37–15:45 | OA60-04

Implant Design Affects Knee Kinematics During Chair Rise After Total Knee Arthroplasty

Tom Gale (United States)

15:45–15:48 | Q&A

15:48–15:56 | OA60-05

Wear Behaviour of Total Hip Replacements During Subject-Specific Walking and Running: A Finite Element Study

Zainab Altai (United Kingdom)

15:56–16:00 | Q&A

OA61 – Computer Vision Methods for Biomechanics**15:00–16:00** | West 223-224**Track: Emerging Areas***Chair(s): Jennifer Hicks (United States), Fabio Galbusera (Switzerland)***15:00–15:12** | OA61-01**Biomechanics using Smartphones: Expanding the Who, What, and Where of Human Movement Research***Scott Uhlich (United States)***15:12–15:15** | Q&A**15:15–15:23** | OA61-02**Video-Based Hip Kinematic Analysis and Machine Learning for Screening of Sarcopenia During the Five Times Sit-to-Stand Test***Hejin Cai (Hong Kong)***15:23–15:26** | Q&A**15:26–15:34** | OA61-03**World-Grounded 3D Pose Estimation for Marker-Less Motion Analysis in Children***Josephine Wang (United States)***15:34–15:37** | Q&A**15:37–15:45** | OA61-04**Markerless Motion Tracking Powered by Synthetic Data Outperforms Alternatives in Estimation of Lower-Extremity Joint Moments***Soyong Shin (United States)***15:45–15:48** | Q&A**15:48–15:56** | OA61-05**Influence of Camera Orientation on Joint-Angle Estimation Using Single-Camera 2D and 3D Markerless Motion Capture***Ishi Arora (Canada)***15:56–16:00** | Q&A

OA62 – Spine Imaging and Measurement**15:00–16:00** | West 217-219**Track: Orthopaedic Biomechanics: Spine***Chair(s): Christian Liebsch (Germany), Axel Moore (United States)***15:00–15:12** | OA62-01**Establishing the 3D Asymmetry of the Intervertebral Disc in Adolescent Idiopathic Scoliosis***Anna Iacocca (United States)***15:12–15:15** | Q&A**15:15–15:23** | OA62-02**Quantification of Vertebral Bone Morphology in Young Adults Using Ultrashort Echo Time MRI Sequence***Salvatore Conticello (Switzerland)***15:23–15:26** | Q&A**15:26–15:34** | OA62-03**Generating Standing Posture Finite Element Models of the Spine Based on Radiation-Free Imaging***Federica Incatasciato (Netherlands)***15:34–15:37** | Q&A**15:37–15:45** | OA62-04**Mechanics-Informed Stability and Morphological Descriptors for Predicting Adolescent Idiopathic Scoliosis Progression***David Landinez Leon (Colombia)***15:45–15:48** | Q&A**15:48–15:56** | OA62-05**In-Vivo Identification of Adolescent Idiopathic Spine Properties through Intraoperative Measurement and FE Modelling***Till van der Reijden (Switzerland)***15:56–16:00** | Q&A

OA63 – Bioreactors and Biomanufacturing**15:00–16:00** | West 221-222**Track: Tissue Engineering: Methods, Models and Applications***Chair(s): Alberto Sensini (Netherlands)***15:00–15:08** | OA63-01**A Novel Biomechanical Bioreactor Platform Reveals that Tensional Homeostasis in Soft Tissues Arises from a Balance Between Cell Contractility and Extracellular Matrix Densification***Jacopo Ferruzzi (United States)***15:08–15:11** | Q&A**15:19–15:22** | OA63-02**Tissue Maturation In Engineered Ligaments is Synergistically Improved Via Combined Slow Elongation and Rapid Intermittent Cyclic Stretch***Leia Troop (United States)***15:22–15:30** | Q&A**15:30–15:33** | OA63-03**Cyclic Mechanical Stimulation of TDPCs Improves Tendon Tissue Maturation in Vitro by Enhanced Collagen Fibril Formation***Ekaterina Oleinik (Austria)***15:45–16:00** | Q&A

OA64 – Cardiovascular Mechanobiology in Tissue Engineering**15:00–16:00** | West 220**Track: Tissue Engineering: Mechanobiology***Chair(s): Jonathan Butcher (United States)***15:00–15:12** | OA64-01**Mechanobiology in Cardiovascular Tissue Engineering Design***Jay Humphrey (United States)***15:12–15:15** | Q&A**15:15–15:23** | OA64-02**Cell Size Orchestrates Osteogenic Commitment of Adipose-Derived Stem Cells via H3K9me3 Demethylation***Han Wang (China)***15:23–15:26** | Q&A**15:26–15:34** | OA64-03**Mechanobiological Effects of Dynamic Loading Modalities in Engineered Cartilage: A Meta-Analysis***Kathryn S. Stok (Australia)***15:34–15:37** | Q&A**15:37–15:45** | OA64-04**Mechanobiological Regulation of Transport and Shear in Hierarchical Bio-Inspired Scaffolds for Bone Repair***Federica Buccino (Italy)***15:45–15:48** | Q&A**15:48–15:56** | OA64-05**Activation of Mechanotransduction in Redifferentiating Human Articular Chondrocytes in Response to Short-Term Mechanical Stimulation***Rhima Coleman (United States)***15:56–16:00** | Q&A

OA65 – Assistive Technologies to Support Locomotion–Part II**15:00–16:00** | West 208-209**Track: Imaging and Biomedical Devices: Assistive Technologies***Chair(s): Kat Steele (United States), Ilse Jonkers (Belgium)***15:00–15:12** | OA65-01**Data-Augmented Deep Learning and Wearable Haptic Feedback for Step Width Estimation and Gait Stability Training***Peter Shull (China)***15:12–15:15** | Q&A**15:15–15:23** | OA65-02**Exoskeleton Reduces Knee Contact Force Through Consistent Decreases in Intersegmental Forces and Varied Changes in Muscle Forces Across People***Ashley Brown (United States)***15:23–15:26** | Q&A**15:26–15:34** | OA65-03**Tuning Twisted and Coiled Artificial Muscles (TCAMs) for a Combined Passive-Active Ankle-Foot Orthosis***Deema Totah (United States)***15:34–15:37** | Q&A**15:37–15:45** | OA65-04**Mechano-Luminescence-Optoelectronic Health Monitoring Wearables for Physical Health Digital Twin***Donghyeon Ryu (United States)***15:45–15:48** | Q&A**15:48–15:56** | OA65-05**Second Harmonic Generation-Derived Collagen Fraction as a Biomarker for Early Osteoarthritis Detection in Human Tibial Cartilage***Benafsha Tughra (Canada)***15:56–16:00** | Q&A

Coffee Break and Poster Viewing Day 1

16:00–17:00 | Exhibit Hall – West Ballroom BCD

Xsens Product Theater

16:15–16:30 | Product Theater – Exhibit Hall

Xsens Kinetics: Forces beyond the lab.

Join Domitille Princell, Research Engineer at Xsens for discussion around portable ground reaction force estimation using IMU-based motion capture.



ES8 – Revisiting Priorities in Locomotion Research for Clinical Impact

17:00–18:00 | West 215-216

Track: Clinical Biomechanics

17:00–18:00 | Presentations

ES8.03 From Groups to Individuals Finding the Right Scale for Clinical Impact

Elise Laende (Canada), Luke Kelly (Australia)

ES8.01 From Research to Practice Influencing Guidelines and Building In-Roads to the Clinic

Kevin Deluzio (Canada), Rebekah Lawrence (United States)

ES8.02 Revisiting Niches Rethinking the Landscape of Locomotion Research

Jillian Beveridge (United States), Diane Gregory (Canada)

ES8.04 The Role of Locomotion Research in Disease Prevention

Steve Messier (United States), Jackie Hurley (Canada)

OA66 – Neurologic Medicine–Limb Loss**17:00–18:10** | West Ballroom A**Track: Clinical Biomechanics***Chair(s): Laurent Frossard (Australia), Alena Grabowski (United States)***17:00–17:08** | OA66-01**Replicating Physiological Stance Knee Flexion Reduces Residual Hip Torque in Above-Knee Amputees***Karen Walker (United States)***17:08–17:11** | Q&A**17:11–17:19** | OA66-02**Isometric Hip Extensor Torque-Angle Relationships Differ Between the Residual and Intact Limb of Transfemoral Prosthesis Users.***Andrew Sawers (United States)***17:19–17:22** | Q&A**17:22–17:30** | OA66-03**Preferred Gait Symmetry and Energetic Cost in Unilateral Below-Knee Prosthesis Users***Kirsty McDonald (Australia)***17:30–17:33** | Q&A**17:33–17:41** | OA66-04**The Effect of Prosthetic Foot Stiffness on Gait Stability***Tyler Ho (United States)***17:41–17:44** | Q&A**17:44–17:52** | OA66-05**Hip Muscle Co-Contraction in Transfemoral Prosthesis Users May Not Be an Inherent Consequence of Amputation***Hannah Carey (United States)***17:52–17:55** | Q&A**17:55–18:03** | OA66-06**A Comparison of Gait Adaptations During Two Types of Dual-Task Walking in Individuals With Unilateral Lower Limb Amputation: Part 1- Gait Spatiotemporal Outcomes***Paul Kline (United States)***18:03–18:10** | Q&A

OA67 – Exoskeleton-Assisted Gait**17:00–18:00** | West 211-214**Track: Human Motion and Performance: Locomotion/Gait***Chair(s): David Lloyd (Australia), Guillaume Durandau (Canada)***17:00–17:12** | OA67-01**Evaluation and Optimization of Gait Dynamics Using Exoskeletons***Katherine Steele (United States)***17:12–17:15** | Q&A**17:15–17:23** | OA67-02**Wearable Ankle Resistance Training to Enhance Gait Function in Older Adults:
A Proof-of-Concept Feasibility Study Using a Smart Passive Device***Ethan Simaitis (United States)***17:23–17:26** | Q&A**17:26–17:34** | OA67-03**Bottom-Up and Top-Down: Learning Physiologically Plausible Exoskeleton Control
via Physics-Informed Musculoskeletal Simulation***Inseung Kang (United States)***17:34–17:37** | Q&A**17:37–17:45** | OA67-04**Powered Footwear System Designs Must Account for Athlete Kinematic Changes
in Response to Ankle Assistance and System Compliance***Alison Sheets-Singer (United States)***17:45–17:48** | Q&A**17:48–17:56** | OA67-05**Control of a Modular Hip-Knee Exoskeleton via Reinforcement Learning for
Sit-to-Stand and Squatting Assistance***Xianlian Zhou (United States)***17:56–18:00** | Q&A

OA68 – Lower Extremity**17:00–18:10** | West 301**Track: Human Motion and Performance: Sports***Chair(s): Jordan Cannon (Canada), Katie Lucas (United States)***17:00–17:12** | OA68-01**Same Jump Height, Different Movement Strategy: Five Force Production Phenotypes in Elite Athletes***Bahman Adlou (United States)***17:08–17:11** | Q&A**17:11–17:19** | OA68-02**Joint Loading and Performance Implications of an Isolated Reduction in Footwear Rotational Traction***Marlon Rainville (United States)***17:19–17:22** | Q&A**17:22–17:30** | OA68-03**Height or Hops: Why Do Female Hoopsters Rarely Dunk?***Emily Haag (United States)***17:30–17:33** | Q&A**17:33–17:41** | OA68-04**Quantifying Execution Variability in the CMJ: Phase-Specific Responses to Practice-Induced Fatigue***Anil Palanisamy (Canada)***17:41–17:44** | Q&A**17:44–17:52** | OA68-05**ACL Injury Resilience Score Distinguishes Risky and Protective Biomechanics with In-Lab and Out-of-Lab Measurement Tools***Krithika Swaminathan (United States)***17:52–17:55** | Q&A**17:55–18:03** | OA68-06**Upward Movement Velocity and Acceleration Strategies That Enable the Minimum-Velocity Advantage in Basketball Free Throws***Kaitlin Jackson (United States)***18:03–18:10** | Q&A

OA69 – Computational Fluid Dynamics #1**17:00–18:00** | West 302-305**Track: Cardiovascular/Cardiorespiratory Biomechanics: Methods, Models and Applications***Chair(s): Simona Celi (Italy), Ender Finol (United States)***17:00–17:13** | OA69-05**Computational Fluid Dynamics of the Cerebrovasculature***Alberto Aliseda (United States)***17:12–17:15** | Q&A**17:15–17:23** | OA69-01**Integrating In-Silico and In-Vitro Approaches to Elucidate the Role of Flow-Induced Vascular Wall Vibrations in Arteriovenous Fistula Failure***Luca Soliveri (Italy)***17:23–17:26** | Q&A**17:26–17:34** | OA69-02**Relationship Between Wall Shear Stress and Coronary Computed Tomography Angiography-Derived Features in Diseased Coronary Arteries***Maurizio Lodi Rizzini (Italy)***17:34–17:37** | Q&A**17:37–17:45** | OA69-03**Large-Scale Studies to Investigate the Prognostic Utility of Computational Hemodynamics in Coronary Artery Disease***Diego Gallo (Italy)***17:45–17:48** | Q&A**17:48–17:56** | OA69-04**Computational Analysis of Posture-Dependent Cerebrovascular Hemodynamics Using a Multiscale Model with Vascular Autoregulation***Youngjae Choi (Korea, Republic of)***17:56–18:00** | Q&A

OA70 – Inverse Dynamics and Subject-Specific Predictive Modeling

17:00–18:10 | West 202-204

Track: Musculoskeletal Biomechanics: Methods, Models and Applications

Chair(s): Stefan Schmid (Switzerland), Benjamin Wheatley (United States)

17:00–17:08 | OA70-01

Muscle Contributions to the Hip and Knee Articular Contact Forces in Highly Functional Unilateral Transtibial Amputees During Gait

Bryan Rivera Calagua (Canada)

17:08–17:11 | Q&A

17:11–17:19 | OA70-02

Modeling the Infant Head-Neck Complex to Investigate Positional Asphyxia Risk in Inclined Environments

Andrew Bossert (United States)

17:19–17:22 | Q&A

17:22–17:30 | OA70-03

The Development and Implementation of a Computational Framework to Simulate Patellofemoral Joint Mechanics: Direct Comparisons Between Musculoskeletal Modeling and Finite Element Analysis

Benjamin Wheatley (United States)

17:30–17:33 | Q&A

17:33–17:41 | OA70-04

Impact of Personalized Model Using the Opensim-Torsion Tool on Muscle Contribution for CG Acceleration Estimation in CP Children

António Veloso (Portugal)

17:41–17:44 | Q&A

17:44–17:52 | OA70-05

Automated Subject-Specific Modeling of 6 DoF Glenohumeral Kinematics

Eva C. Herbst (Switzerland)

17:52–17:55 | Q&A

17:55–18:03 | OA70-06

Design of Patient-specific High Tibial Osteotomy Surgery using Predictive Simulations of Walking

Benjamin Fregly (United States)

18:03–18:10 | Q&A

OA71 – Emerging Areas in Organ Biomechanics**17:00–18:00** | West 205-207**Track: Organ and Tissue Biomechanics***Chair(s): Lynne Bilston (Australia), Lyndia Wu (Canada)***17:00–17:12** | OA71-01**Mechanobiology of Bone: ATP as a Spatiotemporal Messenger***Svetlana Komarova (Canada)***17:12–17:15** | Q&A**17:15–17:23** | OA71-02**Spatially-Resolved Multiscale Mechanics of the Mouse Achilles Tendon Enthesis Unveiled by in Situ X-Ray Scattering***Isabella Silva Barreto (France)***17:23–17:26** | Q&A**17:26–17:34** | OA71-03**Image-to-Mechanics Mapping of Bone via DECT-Quantified Composition: A Numerical Study***Yunhua Luo (Canada)***17:34–17:37** | Q&A**17:37–17:45** | OA71-04**Unique Deformation Mechanisms in Teleost Intermuscular Bones***Jean-Philippe Berteau (United States)***17:45–17:48** | Q&A**17:48–17:56** | OA71-05**Modeling Immuno-Mechanics in Vascular Adaptation***Jay Humphrey (United States)***17:56–18:00** | Q&A

OA72 – Biomechanics of Lower Limb Rehabilitation**17:00–18:00** | West 109**Track: Rehabilitation Biomechanics and Human Factors: Rehabilitation***Chair(s): Gillian Hatfield (Canada), Shinya Ogaya (Japan)***17:00–17:08** | OA72-01**Community-Based RoboGym Circuit Training Improves Gross Motor Function, Independence, and Quality of Life in Children With Cerebral Palsy***Chaesu Kim (Korea, Republic of)***17:08–17:11** | Q&A**17:11–17:19** | OA72-02**Relative Demand on the Knee Extensors During Running Following an Anterior Cruciate Ligament Reconstruction***Meredith Owen (United States)***17:19–17:22** | Q&A**17:22–17:30** | OA72-04**Mechanisms of Plantar Load Transfer in Custom Accommodative Insoles for People With Diabetes***Dylan Heino (United States)***17:30–17:33** | Q&A**17:33–17:41** | OA72-05**A Biomechanical-Social Analysis of Multijoint Leg Extensor Eccentric-Concentric Force Output in Healthy and Post-ACL Reconstructed Female University Athletes***Dana J Hunter (Canada)***17:41–17:44** | Q&A**17:44–17:52** | OA72-06**Biomechanical Correlates of Positive Hip Joint Work and Symmetry in Post-Stroke Gait***Dongwon Jeong (United States)***17:52–18:00** | Q&A

OA73 – Knee Osteoarthritis: Contact Forces, Alignment, and Cartilage Change

17:00–18:00 | West 110

Track: Orthopaedic Biomechanics: Lower Extremities

Chair(s): Melinda Harman (United States)

17:00–17:12 | OA73-01

Simulated Medial Knee Contact Force is More Predictive of Cartilage Thinning Than Static Alignment: An Analysis of 3,301 OAI Subjects

Anthony Gatti (United States)

17:12–17:15 | Q&A

17:15–17:23 | OA73-02

Cartilage Biomechanical Responses Are Reduced by Valgus Bracing in Varus Malaligned Knees With Medial Osteoarthritis

Joose Peitola (Finland)

17:23–17:26 | Q&A

17:26–17:34 | OA73-03

The Impact of Estrogen on Stress Relaxation Properties and Collagen Content in Chondrocyte-Seeded Alginate Gels

Emma Stevens (United States)

17:34–17:37 | Q&A

17:37–17:45 | OA73-04

Cartilage Thickness not Pain Variability is Associated with Higher Stride Length Variability in Knee Osteoarthritis

Skylar Holmes (United States)

17:45–17:48 | Q&A

17:48–17:56 | OA73-05

Longitudinal Bone and Joint Changes After High Tibial Osteotomy for Medial Knee Osteoarthritis

Tadiwa Waungana (Canada)

17:56–18:00 | Q&A

OA74 – Emerging Imaging Techniques for Biomechanics**17:00–18:10** | West 223-224**Track: Emerging Areas***Chair(s): Fabio Galbusera (Switzerland), Zhihui Qian (China)***17:00–17:08** | OA74-01**Craniofacial CBCT: Addressing Volume-Resolution Dilemma using Generative Artificial Intelligence***Syedmahdi Hosseinatabatabaei (Canada)***17:08–17:11** | Q&A**17:11–17:19** | OA74-02**4D Reconstruction of Fetal Left Ventricles from Echocardiography via Geometric-Aware Radial Segmentation and Graph-Fourier Reconstruction***Choon Hwai Yap (United Kingdom)***17:19–17:22** | Q&A**17:22–17:30** | OA74-03**oNLI: Operator Nonlinear Inversion of Magnetic Resonance Elastography Data for Real-Time Viscoelasticity Reconstruction***Caitlin Neher (United States)***17:30–17:33** | Q&A**17:33–17:41** | OA74-04**Sex-Specific Morphological Determinants of Cardiac Ageing in a Healthy Population***Beatrice Moscoloni (Belgium)***17:41–17:44** | Q&A**17:44–17:52** | OA74-05**Surface Topography-Based Analysis for Automated Classification of Adolescent Idiopathic Scoliosis (AIS)***Mahmoud Hashim (Canada)***17:52–17:55** | Q&A**17:55–18:03** | OA74-06**Super-Resolution and Denoising of Left Ventricle 4D Flow Images***Fanwei Kong (United States)***18:03–18:10** | Q&A

OA75 – Mechanobiology of Cancer**17:00–18:00** | West 217-219**Track: Cell Biomechanics: Mechanobiology (United States)***Chair(s): Roger Kamm (United States), Adam Engler (United States)***17:00–17:12** | OA75-01**Mechano-Genomics of Cell-Fate Decisions***G.V. Shivashankar (Switzerland)***17:12–17:15** | Q&A**17:15–17:30** | OA75-02**Hydrostatic Pressure Reconfigures Nuclear Mechanics to Activate Proliferative Signaling in Cancer Cells***Daisuke Yoshino (Japan)***17:38–17:41** | Q&A**17:41–17:49** | OA75-03**Bioenergetic Pathways Regulate Distinct Patterns of Invasion and Matrix Remodeling in Breast Cancer Cells Upon YAP/TAZ Activation***Jacopo Ferruzzi (United States)***17:49–18:00** | Q&A

OA76 – Injury, Rehabilitation & Clinical Biomechanics**17:00–18:00** | West 221-222**Track: Orthopaedic Biomechanics: Upper Extremities***Chair(s): David Ackland (Australia), Fransiska Bossuyt (Switzerland)***17:00–17:12** | OA76-01**From Standard to Practice: Applying Risk-Based Credibility to Computational Modeling***Linda Knudsen (United States)***17:12–17:15** | Q&A**17:15–17:23** | OA76-02**Hyper-Selective Neurectomy Shifts Sarcomere Length in Spastic Human Biceps Toward Normal Values***Zheng Wang (United States)***17:23–17:26** | Q&A**17:26–17:34** | OA76-03**Accelerated Rotator Cuff Degeneration in Manual Wheelchair Users with Spinal Cord Injury: Longitudinal MRI and 5-Year Transition Modeling***Omid Jahanian (United States)***17:34–17:37** | Q&A**17:37–17:45** | OA76-04**Compensatory Scapulothoracic Mechanisms and Glenohumeral Deficits in Rotator Cuff Pathology: A Multi-Site 3D Motion Capture Biokinetic Analysis of 76 Shoulders***Renato Miyadahira (Brazil)***17:45–17:48** | Q&A**17:48–17:56** | OA76-05**It is Worth the RASL: Scapholunate Ligament Reconstructive Surgery Aids Restoration of Healthy Kinematic Patterns***Justen Saini (Canada)***17:56–18:00** | Q&A

OA77 – Tissue Engineered Models for Physiology and Developmental Mechanobiology

17:00–18:00 | West 220

Track: Tissue Engineering: Mechanobiology

Chair(s): Sandra Loerakker (Netherlands), Aurelie Carlier (Netherlands)

17:00–17:12 | OA77-01

Computational Mechanobiology of Notch Signaling in Cardiovascular Tissue Engineering

Sandra Loerakker (Netherlands)

17:12–17:15 | Q&A

17:15–17:23 | OA77-02

Developing a Collagen Fiber-Mimetic Strain Model of the Meniscus Cell Mechanoresponse After Injury

Janie Johnson (United States)

17:23–17:26 | Q&A

17:26–17:34 | OA77-03

Architected 3D Micro-Scaffold as a Mechanotransduction Platform for Stemness Preservation in Mesenchymal Cells

Giovanni Buccioli (Italy)

17:34–17:37 | Q&A

17:37–17:45 | OA77-04

Wavy Topography Enhances Contractile Phenotype and YAP Nuclear Localization in Primary Vascular Smooth Muscle Cell

Wei-Chen Leo Lin (Taiwan)

17:45–17:48 | Q&A

17:48–17:56 | OA77-05

TGF- β 2 and Matrix Stiffening Elicit Mesenchymal Transition of Choroidal Endothelial Cells In Vitro

Richard Cliver (United States)

17:56–18:00 | Q&A

OA78 – Biofluidic Flow**17:00–18:00** | West 208-209**Track: Micro/Biofluidics: In Silico Models and Simulation***Chair(s): Toshihiro Omori (Japan), Takuji Ishikawa (Japan)***17:00–17:12** | OA78-01**Automating the Simulation of Cough Induced Csf Flow in Subject-Specific Models of Chiari Malformation Using Machine Learning***Rob Lloyd (Australia)***17:12–17:15** | Q&A**17:15–17:23** | OA78-02**Process-Specific Numerical Simulations as an Optimization Tool of Microfluidic Nanoparticles Synthesis***Marco Bellotti (Italy)***17:23–17:26** | Q&A**17:26–17:34** | OA78-03**Artificial Microswimmer Propulsion in Blood: Surface-Active Designs Reduce Resistance and Improve Trajectory Stability***Chenjun Wu (Italy)***17:34–18:00** | Q&A**Student Night Out (Ticketed Event) SOLD OUT****19:00–22:00** | Level 2 Ocean Foyer

Featuring a performance by WCB's Got Talent: Luigi's Fishtank featuring James Arnold, David Point, David Adam Quirk

Program

MONDAY, July 13

Fun Run (Limited Capacity, Sign Up Required)

07:00–07:40 | Meeting Point: Vancouver Convention Centre, West Building, Burrard Street Entrance, Under the Globe

sponsored by



PL05 – Breaking Down Bone Disease: Multidisciplinary Research Into Mechanobiological Mechanisms of Osteoporosis and Cancer Metastasis

08:30–09:15 | West Ballroom A

Track: Cell Biomechanics: Mechanobiology

Chair(s): Esther Reina Romo (Spain), Damien Lacroix (United Kingdom)

08:30–09:00 | PL05-01

Breaking Down Bone Disease: Multidisciplinary Research Into Mechanobiological Mechanisms of Osteoporosis and Cancer Metastasis

Laoise McNamara (Ireland)

09:00–09:15 | Q&A

PL06 – Foot and Ankle Biomechanics for Footwear Design

08:30–09:15 | West 211-214

Track: Orthopaedic Biomechanics: Lower Extremities

Chair(s): Amit Gefen (Belgium)

08:30–09:00 | PL06-01

Foot and Ankle Biomechanics for Footwear Design

Ming Zhang (China)

09:00–09:15 | Q&A

ES9 – Women's Health Biomechanics: The Engineering Perspective

09:30–10:30 | West 215-216

Track: Emerging Areas

09:30–9:40 | Introductory Remarks

Mariana Masteling (United States), Camilo Cardon (United States), Erin Louwagie (United States)

09:40–10:20 | 7 minutes each, consisting of prompt questions (3 minutes), discussion (3 minutes), and Q&A (1 minute)

ES9-01 Women's Health Biomechanics: The Engineering Perspective

Gauri Desai (United States)

ES9-02 Discussion

Rachel, Surowiecz (United States)

ES9-03 The Challenge of Measuring Female Pelvic Floor Morphology and Function

Linda, McLeaan (Canada)

ES9-04 Discussion

David, Lipps (United States)

ES9-05 Discussion

Aimee, Mears (United States)

Discussion

Kristin Myers (United States)

10:20–10:25 | General Q&A

10:25–10:30 | Closing Remarks

OA79 – Neurologic Medicine – Cancer and Diabetes

09:30–10:40 | West Ballroom A

Track: Clinical Biomechanics

Chair(s): Kenzie Friesen (Canada), Isabel Sacco (Brazil)

09:30–09:38 | OA79-01

Early Biomechanical Insights into the Association between Offloading Adherence and Gait Mechanics in Diabetic Foot Ulcer Patients Offloaded with Removable Cast Walkers

Noah Rosenblatt (United States)

09:38–09:41 | Q&A

09:41–09:49 | OA79-02

Postural Instability in Diabetes Mellitus: Insights from Rambling-Trembling and Non-linear Approach

Kai Cheng (United States)

09:49–09:52 | Q&A

09:52–10:00 | OA79-03

Comparing Upper Limb Muscle Activation Following Unilateral and Prophylactic Contralateral Mastectomy for Unilateral Breast Cancer

Sarah Fitzgerald (Canada)

10:00–10:03 | Q&A

10:03–10:11 | OA79-04

Gait Variability and Velocity Improve With Partnered Dance Intervention Among Individuals With Breast Cancer and Chemotherapy-Induced Neuropathy: A Pilot Study

Aya Alwan (United States)

10:11–10:14 | Q&A

10:14–10:22 | OA79-05

A Personalised Intervention Integrating Pressure-Optimized Footwear, Self-Management and Education Reduces the Incidence of Foot Ulcer Recurrence in Diabetes: The DIASSIST Multicenter Randomised Controlled Trial

Sicco Bus (Netherlands)

10:22–10:25 | Q&A

10:25–10:33 | OA79-06

Myofascial Massage Reduces Pain in Breast Cancer Survivors but Does Not Induce Acute Changes in Tissue Stiffness- a Pilot Study.

Layla Lynch (United States)

10:33–10:40 | Q&A

OA80 – Gait of Individuals with Limb Loss**09:30–10:30** | West 211-214**Track: Human Motion and Performance: Locomotion/Gait***Chair(s): Laura Diamond (Australia), Amir Esrafilian (United States)***09:30–09:42** | OA80-01**Socket Solutions and Bone-Anchored Neuroprostheses: How Digital Twins Can Advance the Thinking Before the Doing!***Laurent Frossard (Australia)***09:42–09:45** | Q&A**09:45–09:53** | OA80-02**Optimizing Prosthesis Knee Damping Minimizes Intact-Knee Contact Forces During Ramp Descent in Transfemoral Amputees***Elise Nielsen (United States)***09:53–09:56** | Q&A**09:56–10:04** | OA80-03**Current Clinical Practice for Prosthesis Alignment Does Not Yield Lowest Interlimb Asymmetry in People With Unilateral Transtibial Amputation during Walking***Kelsie Heffernan (United States)***10:04–10:07** | Q&A**10:07–10:15** | OA80-04**A Comparison of Gait Adaptations During Two Types of Dual-Task Walking in Individuals With Unilateral Lower Limb Amputation: Part 2- Limb Loading Symmetry***Emily Parsowith (United States)***10:15–10:18** | Q&A**10:18–10:26** | OA80-05**Amputee Motor Control During Steady-State Overground Walking with Non-Prescribed Feet***Satria Ardianuari (United States)***10:26–10:30** | Q&A

OA81 – Ankles and Tendons

09:30–10:45 | West 301

Track: Human Motion and Performance: Sports

Chair(s): Stephane Cone (United States), Kornelia Kulig (United States)

09:30–09:38 | OA81-01

Using Stereoradiography to Investigate Ankle Motion with a Powered Footwear System

Destan Norman (United States)

09:38–09:41 | Q&A

09:41–09:49 | OA81-02

Experience Led Biomechanics: Multivariate Links Between Foot and Ankle Kinematics and Transition Perception with a New Footwear FlexZone Technology

Megan Saftich (United States)

09:49–09:57 | Q&A

09:57–10:05 | OA81-03

Analysis of Backpedal Mechanics and Achilles Tendon Loading in Elite American Football Athletes

Rachel H. Teater (United States)

10:05–10:08 | Q&A

10:08–10:16 | OA81-04

Fifth Metatarsal Cumulative Loading Across Rugby-Specific Movements in Elite Athletes Assessed via Plantar Pressure Measurement

Zixiang Gao (Canada)

10:16–10:19 | Q&A

10:19–10:27 | OA81-05

Acute Effect of Incremental Exhaustive Treadmill Running on Running Biomechanics in Well-Trained Runners

Steffen Mueller (Germany)

10:27–10:30 | Q&A

10:30–10:38 | OA81-06

Assessment of Achilles Tendon Loading During Outdoor Running Using a Novel Wearable System

Fisher Adkisson (United States)

10:38–10:45 | Q&A

OA82 – Computational Fluid Dynamics #2

09:30–10:30 | West 302-305

Track: Cardiovascular/Cardiorespiratory Biomechanics: Methods, Models and Applications

Chair(s): Makoto Ohta (Japan), Diego Gallo (Italy)

09:30–09:42 | OA82-01

Spatiotemporal Evolution of the Mechano-Chemo-Biological Microenvironment of Atherothrombosis

Zhiyong Li (Australia)

09:42–09:45 | Q&A

09:45–09:53 | OA82-02

Predicting Post-TEVAR Endoleaks: A Novel Pre-Operative Hemodynamic Risk Factor From Fluid-Structure Interaction simulations

Francesca Duca (Italy)

09:53–09:56 | Q&A

09:56–10:04 | OA82-03

Onset and Nature of Flow Instabilities in Cerebral Venous Diseases

Rojin Anbarafshan (Canada)

10:04–10:07 | Q&A

10:07–10:15 | OA82-04

Ultrasound-Based Fluid Structure Interaction Modelling of Diseased Carotid Arteries

Lotte Piek (Netherlands)

10:15–10:18 | Q&A

10:18–10:26 | OA82-05

A Proper Orthogonal Decomposition-Based Approach to Expedite Transient Clinical-Use CFD in Coronary Arteries

Girolamo Mastronuzzi (Italy)

10:26–10:30 | Q&A

OA83 – Ex Vivo and In Vitro Characterization of Tissue Mechanics**09:30–10:40** | West 202-204**Track: Musculoskeletal Biomechanics: Methods, Models and Applications***Chair(s): Angela Kedgley (United Kingdom), Emily Rogers-Bradley (Canada)***09:30–09:38** | OA83-01**Biofidelic Foot Models for In Vitro Gait Simulation Must Include a Compliant Plantar Surface***Antony Crossman (United Kingdom)***09:38–09:41** | Q&A**09:41–09:49** | OA83-02**Construct Validity of a Novel Arthrometer-Based First Ray Relative Mobility Index: A Cadaveric Biomechanical Study***Florent Moissenet (Switzerland)***09:49–09:52** | Q&A**09:52–10:00** | OA83-03**A Combined MRI and Inverse Finite Element Analysis (iFEA) Workflow for Subject-Specific Characterisation of Meniscus Material Properties In Situ***Sherif Zantiba (United Kingdom)***10:00–10:03** | Q&A**10:03–10:11** | OA83-04**In Vitro Biomechanical Assessment of Nucleus Augmentation for the Treatment of Degenerated Intervertebral Discs***Ruth Wilcox (United Kingdom)***10:11–10:14** | Q&A**10:14–10:22** | OA83-05**Tendon Injury Mechanism and Severity Alter Musculotendon Mechanics in an ex-Vivo Rabbit Model***Kathryn Rex (United States)***10:22–10:25** | Q&A**10:25–10:33** | OA83-06**Digital Image Correlation for Measuring Strain in the Achilles Tendon During Cyclic Loading***Nisal Jayaneththi (Australia)***10:33–10:40** | Q&A

OA84 – Cardiovascular Biomechanics**09:30–10:30** | West 205-207**Track: Organ and Tissue Biomechanics***Chair(s): Alison Marsden (United States), Martyn Nash (Australia)***09:30–09:42** | OA84-01**From Machine-Learning Based Identification Towards Multi-Scale Digital Twins of the Human Aorta***Stephane Avril (France)***09:42–09:45** | Q&A**09:45–09:53** | OA84-02**JAX-based High-Speed Simulations of Mitral Valve Transcatheter Edge to Edge Repair***Kenneth Meyer (United States)***09:53–09:56** | Q&A**09:56–10:04** | OA84-03**Mechanical Vulnerability of the Hypertensive Marfan Aorta***Gavin Mays (United States)***10:04–10:07** | Q&A**10:07–10:15** | OA84-04**Evaluation of the Role of Macrostructure in the Anisotropy of the Atrial Appendage Tissue***Kundry Reibel (France)***10:15–10:18** | Q&A**10:18–10:26** | OA84-05**A Microstructure-Driven Arterial Representative Volume Element Framework Using Contrast-Enhanced Microfocus Computed Tomography for Constitutive Model Discovery***Hannes Wolfs (Belgium)***10:26–10:30** | Q&A

OA85 – Movement Neuromechanics**09:30–10:30** | West 109**Track: Rehabilitation Biomechanics and Human Factors: Rehabilitation***Chair(s): Christa Nelson (United States), Carrie Peterson (United States)***09:30–09:38** | OA85-01**Effects of Proactive and Reactive Perturbations on Foot Placement Modulation in People With Chronic Stroke***Jesse Dean (United States)***09:38–09:41** | Q&A**09:41–09:49** | OA85-02**Neuromuscular Fatigue-Integrated Balance Training Does Not Improve Fatigue Resilience of Dynamic Postural Control in Individuals With Chronic Ankle Instability: Double-Blinded Randomized Controlled Trials***Suji Yoon (Korea, Republic of)***09:49–09:52** | Q&A**09:52–10:00** | OA85-03**A Minimally Invasive Implant Acts as a Digital Nervous System for Manipulating Limb Mechanics***Jennifer Leestma (United States)***10:00–10:03** | Q&A**10:03–10:11** | OA85-04**Relating Mechanical Stiffness to Quasi-Stiffness at the Knee During Walking Using an Adjustable Stiffness Leg Brace***Sierra Foley (United States)***10:11–10:14** | Q&A**10:14–10:22** | OA85-05**Influence of Delayed Onset Muscle Soreness on Joint Stiffness in Different Jumps Landing Tasks***Felipe Carpes (Brazil)***10:22–10:30** | Q&A

OA86 – Foot and Ankle Biomechanics: Morphology, Function, and Reconstruction

09:30–10:40 | West 110

Track: Orthopaedic Biomechanics: Lower Extremities

Chair(s): Amy Lenz (United States), Howard Hillstrom (United States)

09:30–09:38 | OA86-01

Interim Report on Foot Structure and Function after Minimally Invasive Distal Chevron Osteotomy vs Lapidus Bunion Corrections

Howard Hillstrom (United States)

09:38–09:41 | Q&A

09:41–09:49 | OA86-02

Joint Space Distance Measurements of Controls and Individuals With Asymptomatic Flatfoot Across the Stance Phase of Walking

Elizabeth Bowman (United States)

09:49–09:52 | Q&A

09:52–10:00 | OA86-03

SSM-Guided Segmentation of the Bones of the Foot in CT Data with Extremely Narrow Inter-Bone Joint Spaces

Kuan-Hsien Wu (Taiwan)

10:00–10:03 | Q&A

10:03–10:11 | OA86-04

Foot and Ankle Statistical Shape Modeling Reveals Morphological Similarities Between Inherent Foot Types and Osteoarthritis Presentations

Amy Lenz (United States)

10:11–10:14 | Q&A

10:14–10:22 | OA86-05

Pediatric Flatfoot Tarsal Morphology Variation via Statistical Shape Modeling

Nick Slavik (United States)

10:22–10:25 | Q&A

10:25–10:33 | OA86-06

Fracture and Non-Fracture Tibiotalar Osteoarthritis Present Distinct Morphologies in the Midfoot and Ankle Joint

Jordan Langford (United States)

10:33–10:40 | Q&A

OA87 – Tendon and Ligament Biomechanics**09:30–10:30** | West 223-224**Track: Musculoskeletal Biomechanics: Tissues***Chair(s): Ellen Arruda (United States), Jess Snedeker (Switzerland)***09:30–09:42** | OA87-01**Full-Field Strains of the Anterior Cruciate Ligament under Physiologic Loading Configurations***Charlotte Andreasen (United States)***09:42–09:45** | Q&A**09:45–09:53** | OA87-02**Effects of Wrist Posture and Pinch Force on Median Nerve Flattening in the Carpal Tunnel***Zong-Ming Li (United States)***09:53–09:56** | Q&A**09:56–10:04** | OA87-03**Abrocitinib Induces Hypertrophy in an Engineered Human Ligament Model***Adam Kositsky (Finland)***10:04–10:07** | Q&A**10:07–10:15** | OA87-04**A New Mechanical Clamping System for Bone-Ligament-Bone Tensile Testing***Minoo Tehrani (Finland)***10:15–10:18** | Q&A**10:18–10:26** | OA87-05**Sarcomere Length and Force Behavior in Skeletal Muscle Myofibrils***Taiki Ino (Canada)***10:26–10:30** | Q&A

OA88 – Mechanoregulation of Immune Cells**09:30–10:30** | West 217-219**Track: Cell Biomechanics: Mechanobiology***Chair(s): Joseph Chen (United States), Enrico Klotzsch (Germany)***09:30–09:42** | OA88-01**Mechanoregulation of Cytotoxic Lymphocyte Function***Morgan Huse (United States)***09:42–09:45** | Q&A**09:45–09:53** | OA88-02**Resilient Biomechanical Phenotype of Memory CD4+ T Cells in Long-Lived Mice***Aldo Abarca-Ortega (Chile)***09:53–09:56** | Q&A**09:56–10:04** | OA88-03**Integrated mRNA–miRNA Profiling Reveals Dysregulation of Mechanotransduction Pathways in Osteoporotic Bone***Syeda Masooma Naqvi (Ireland)***10:04–10:07** | Q&A**10:07–10:15** | OA88-04**Mechanotransducers Downstream of LFA-1 Control Leukocyte Upstream Migration in the KG-1a Cell Line***Ai Mochida (United States)***10:15–10:18** | Q&A**10:18–10:26** | OA88-05**HIV-1-Tat-Induced Stiffening of Burkitt Lymphoma Cells Is Reversed by Chemical Disruption of the Cytoskeleton***Arthur Ndeh (South Africa)***10:26–10:30** | Q&A

OA89 – Cardiac Valve Devices

09:30–10:30 | West 221-222

Track: Cardiovascular/Cardiorespiratory Biomechanics: Materials and Devices

Chair(s): Laoise McNamara (Ireland), Fanette Chassagne (France)

09:30–09:42 | OA89-01

Transforming Valve Device Development with HuPaSS (Human Pathological Simulator and System): A HuPaSS-Driven Paradigm for Aortic and Mitral Therapies

Kiyotaka Iwasaki (Japan)

09:42–09:45 | Q&A

09:45–09:53 | OA89-02

Fibre Architecture Governs Calcification-Driven Failure in Porcine Pericardium

Luke Guerin (Ireland)

09:53–09:56 | Q&A

09:56–10:04 | OA89-03

Validation and Verification of Patient-Specific TAVI Simulations for Paravalvular Leakage Prediction

Benedetta Grossi (Italy)

10:04–10:07 | Q&A

10:07–10:15 | OA89-04

In-Silico Modelling and Validation of Post-Dilation in TAVI Patients

Letizia Maria Perri (Italy)

10:15–10:18 | Q&A

10:18–10:26 | OA89-05

A Mechano-Mimetic Mitral Valve for Evaluation of Repair in Grades of Mitral Regurgitation – In Vitro and In Silico Findings

Claire Conway (Ireland)

10:26–10:30 | Q&A

OA90 – Microfluidics II**09:30–10:30** | West 220**Track: Micro/Biofluidics: Experiments***Chair(s): Netanel Korin (Israel), Josue Sznitman (Israel)***09:30–09:42** | OA90-01**Miniaturizing Mechanobiology – Tools, Challenges, and Opportunities***Iordania Constantinou (Germany)***09:42–09:45** | Q&A**09:45–09:53** | OA90-03**Label-Free Particle Accumulation in Helical Microtubes with Secondary Flows***Tianmian Liu (China)***09:53–09:56** | Q&A**09:56–10:04** | OA90-04**Analysing the Effect of RBC Aggregation and Deformability in the Microhaemodynamics***Gladys Diaz Armas (United Kingdom)***10:04–10:07** | Q&A**10:07–10:15** | OA90-05**Multimodal Intravital Observation of Drugs Induced Reaction in Bioengineered Avian Embryos Using Nonlinear Microscopy and Magnetic Resonance Imaging***Claudio Conci (Italy)***10:15–10:18** | Q&A**10:18–10:26** | OA90-06**The Influence of Red Blood Cell Deformability on Endothelial Cell Nitric Oxide Signalling: A Biomicrofluidic Approach***Ioana Esanu (United Kingdom)***10:26–10:30** | Q&A

OA91 – Supramolecular Collagen (Fibril) Biomechanics**09:30–10:30** | West 208-209**Track: Molecular Biomechanics***Chair(s): Deborah Leckband (United States), Philipp Thurner (Austria)***09:30–09:42** | OA91-01**Collagen Fibril Nanomechanics, a Tale of Two Tendons***Laurent Kreplak (Canada)***09:42–09:45** | Q&A**09:45–09:53** | OA91-02**Composition-Dependent Mechanics and Stability of Collagen Proteins***Nancy Forde (Canada)***09:53–09:56** | Q&A**09:56–10:04** | OA91-03**Structural Determinants of Microtubule Mechanics: A Computational Analysis of Protofilament Architectures***Eric Adriano Zizzi (Italy)***10:04–10:07** | Q&A**10:07–10:15** | OA91-04**High-Resolution Imaging of Untwisted and Melted DNA in a Cell Nucleus***Koichiro Maki (Japan)***10:15–10:18** | Q&A**10:18–10:26** | OA91-05**Mechanomic Profiling of Cytoskeletal Architecture and Intracellular Forces in Senescent Fibroblasts***Shinji Deguchi (Japan)***10:26–10:30** | Q&A

Coffee Break and Poster Viewing Day 2 With Poster Presenters in Attendance

10:30–11:30 | Exhibit Hall – West Ballroom BCD

Locations are referenced as you enter the Exhibit Hall.

GREEN – Foyer Outside Entrance to Exhibit Hall

Comparative Biomechanics

Rows 1–2 • P2-001–P2-016

Molecular Biomechanics

Row 3 • P2-017–P2-021

Musculoskeletal Biomechanics: Joints and Motion

Rows 3–9 • P2-022–P2-100

Musculoskeletal Biomechanics: Methods, Models and Applications

Rows 9–10 • P2-101–P2-116

RED – Right Wall

Musculoskeletal Biomechanics: Methods, Models and Applications

Rows 11–34 • P2-117–P2-164

BLUE – Back Wall in the Center

Musculoskeletal Biomechanics: Methods, Models and Applications

Rows 35–38 • P2-165–P2-202

Musculoskeletal Biomechanics: Tissues

Rows 38–42 • P2-203–P2-244

YELLOW – Left Side by the Windows and the Product Theater

Musculoskeletal Biomechanics: Tissues

Rows 43–45 • P2-245–P2-265

Rehabilitation Biomechanics and Human Factors: Occupational Biomechanics

Rows 45–47 • P2-266–P2-290

Tissue Engineering: Mechanobiology

Rows 52–53 • P2-345–P2-357

Tissue Engineering: Methods, Models and Applications

Rows 53–55 • P2-358–P2-380

Bertec Product Theater**10:45–11:00** | Product Theater – Exhibit Hall

The Running Boom: The Science Behind Every Stride. Running is more popular than ever, with participation in road races, run clubs, and recreational running continuing to grow. There is an increasing need for objective tools to understand running mechanics, improve performance, and reduce injury risk, as more individuals, from first-time runners to competitive athletes, take to the roads and trails. Join Bertec as they provide an overview of key biomechanical metrics used to evaluate running, discuss the technologies available to measure them, and highlight the role of instrumented treadmills in both research and clinical applications.

ES5 – IRCOBI Session 1: Injury Biomechanics Talks Given by Members of the IRCOBI Council**11:30–12:30** | West 215-216**Chair: Spyros Masouros (United Kingdom)**

Discussants: Matthew Panzer (United States). Gunter Siegmund (United States), Valentina Graci (United States), Mazdak Ghajari (United Kingdom), Jingwen Hu (United States)

OA92 – Neurodegenerative Medicine – PD, MS, ET**11:30–12:30** | West Ballroom A**Track: Clinical Biomechanics***Chair(s): Carolin Curtze (United States), Omid Jahanian (United States)***11:30–11:42** | OA92-05**Biomechanics of Multiple Sclerosis: Quantifying Disability, Revealing Hidden Impairments, and Informing Clinical Care***Massimiliano Pau (Italy)***11:42–11:45** | Q&A**11:45–11:53** | OA92-01**Using Self-Generated Rhythmic Cues to Enhance Gait in Parkinson: Preliminary Analysis of a 12-Week Intervention***Sidney T. Baudendistel (United States)***11:53–11:56** | Q&A**11:56–12:04** | OA92-02**Quantifying Contributions From Individual Wrist Muscles to Hand Tremor in Persons With Essential Tremor***Steven Charles (United States)***12:04–12:07** | Q&A**12:07–12:15** | OA92-03**A Single Thigh-worn Accelerometer and Context-Specific Features to Predict Fall Risk in Persons with Multiple Sclerosis***Guido Mascia (United States)***12:15–12:18** | Q&A**12:18–12:26** | OA92-04**Biomechanical and Sensory-Cortical Interactions During Postural Control in Parkinson's Disease***Ashwini Sansare (United States)***12:26–12:30** | Q&A

OA93 – Technology Assisted Gait

11:30–12:40 | West 211-214

Track: Human Motion and Performance: Locomotion/Gait

Chair(s): Raphael Dumas (France), Kristin Morgan (United States)

11:30–11:38 | OA93-01

Real-Time Amplitude-Based Haptic Feedback Enhances Arm Swing and Spatiotemporal Gait Parameters in Older Adults

Ines Khiyara (United States)

11:38–11:41 | Q&A

11:41–11:49 | OA93-02

Rhythmic Cues with Different Modalities and Structures Distinctly Affect Spatial and Temporal Structure of Gait Kinematics

Seung Kyeom Kim (United States)

11:49–11:52 | Q&A

11:52–12:00 | OA93-03

A Variability-Embedded Music System (VEMS) Modulates Gait Variability as Effectively as Auditory or Visual Cueing

Vasileios Mylonas (United States)

12:00–12:03 | Q&A

12:03–12:11 | OA93-04

Effects of Delay and Amplification of Auditory Feedback for Gait: Variability and Cadence Adaptation

Jingxian Gu (United States)

12:11–12:14 | Q&A

12:14–12:22 | OA93-05

Does Nordic Walking Affect Ground Reaction Forces, Joint Angles, and Joint Moments?

Hyemin Han (Korea, Republic of)

12:22–12:25 | Q&A

12:25–12:33 | OA93-06

Effects of Body Weight Support on Temporal Features of Walking and Crawling Gait in Near-Walking Infants

Tristan McCarty (United States)

12:33–12:40 | Q&A

OA94 – Machine Learning Predictions

11:30–12:30 | West 301

Track: Human Motion and Performance: Sports

Chair(s): Silvio Lorenzetti (Switzerland), Mathilde Montel (France)

11:30–11:42 | OA94-01

Advances in Predictive Approaches in Performance

Katie Knaus (United States)

11:42–11:45 | Q&A

11:45–11:53 | OA94-02

Machine Learning Estimation of Peak Elbow Varus Torque in Baseball Pitching Using a Sensor-Embedded Ball

Atsuki Kageyama (Japan)

11:53–11:56 | Q&A

11:56–12:04 | OA94-03

Biokinetic Profiles of Single-Leg Hop Landing in Healthy and Orthopedic Patients: A Machine Learning-Based Functional Classification Of 1878 Lower Limbs

Tiago Zimerman (Brazil)

12:04–12:07 | Q&A

12:07–12:15 | OA94-04

Predicting Peak Elbow Varus Torque from Ball Tracking Release Metrics with Machine Learning in Professional Baseball Pitchers

Connor Moore (United States)

12:15–12:18 | Q&A

12:18–12:26 | OA94-05

A Machine Learning Approach for Predicting the Grade of Execution of Triple Axel Jumps in Male Figure Skaters Using Real-World Kinematic Data from the World Championships

Seiji HIROSAWA (Japan)

12:26–12:30 | Q&A

OA95 – Computational Fluid Dynamics #3

11:30–12:30 | West 302-305

Track: Cardiovascular/Cardiorespiratory Biomechanics: Methods, Models and Applications

Chair(s): Stéphane Avril (France)

11:30–11:42 | OA95-05

From Flow Simulation to Cardiovascular Risk: The Uncanny Valley of Wall Shear Stress

Umberto Morbiducci (Italy)

11:42–11:45 | Q&A

11:45–11:53 | OA95-01

A Framework for Simulating the Geometric Evolution of Abdominal Aortic Aneurysms with Hemodynamic Validation

Tingting Fan (China)

11:53–11:56 | Q&A

11:56–12:04 | OA95-02

Predicting Patient-Specific TEVAR Outcomes With Finite Element Models: A Proof-of-Concept Study

Francesco Migliaiavacca (Italy)

12:04–12:07 | Q&A

12:07–12:15 | OA95-03

Simplified LV Hemodynamic Forces via Automated Short-Axis Cine MRI Integration: Preliminary Comparison With 4D Flow MRI

Sofia Di Filippo (Italy)

12:15–12:18 | Q&A

12:18–12:26 | OA95-04

A 0D Simulation-Based Framework for Fast and Accurate Boundary Condition Optimization in Coronary Arteries Steady-State and Transient CFD Simulations

Luca Mariani (Italy)

12:26–12:30 | Q&A

OA96 – Finite Element Analysis of Bone and Joint Mechanics

11:30–12:40 | West 202-204

Track: Musculoskeletal Biomechanics: Methods, Models and Applications

Chair(s): Sarah Manske (Canada), Annie Wang (Hong Kong)

11:30–11:38 | OA96-01

Coupled Eulerian-Lagrangian Modelling of Orthopaedic Trauma Bone Screw Pullout

Lin Wang (United Kingdom)

11:38–11:41 | Q&A

11:41–11:49 | OA96-02

Finite Element Investigation of Load-Driven Bone Density Distribution in Dysplastic and Normal Hips

Mohammad Mahmoodi (Netherlands)

11:49–11:52 | Q&A

11:52–12:00 | OA96-03

A High-Fidelity Finite Element Model of the Lumbar Spine to Quantify Load Sharing Across Functional Tasks

Linda Carpenedo (Italy)

12:00–12:03 | Q&A

12:03–12:11 | OA96-04

Fabric and Density Based Determination of Habitual Bone Loading with Homogenised Finite Element Models

Philippe Zysset (Switzerland)

12:11–12:14 | Q&A

12:14–12:22 | OA96-05

Rapidly Converging, Patient-Specific Finite Element Modeling of Foot-Ground Interactions on Variable Terrains and Surface Compliances

Samuel Allen (United States)

12:22–12:25 | Q&A

12:25–12:33 | OA96-06

Changes in Biomechanical Properties of Paediatric Femora With Age Estimated by Finite Element Methods

George Allison (United Kingdom)

12:33–12:40 | Q&A

OA97 – Biomechanics and Properties of Tissues**11:30–12:30** | West 205-207**Track: Organ and Tissue Biomechanics***Chair(s): Martyn Nash (New Zealand), Aisling Ni Annaidh (Ireland)***11:30–11:38** | OA97-01**Biophysical Modeling of Human Colonic Motor Patterns in Health and Disease***Maria Holland (United States)***11:38–11:41** | Q&A**11:41–11:49** | OA97-02**The Generalized-Kelvin-Voigt-Based Visco-Hypoelastic Model Describes the Rate-Dependent Thixotropic Behavior of Individual Collagen Fibrils Under Uniaxial Tension***You-Rong Chiang (Austria)***11:49–11:52** | Q&A**11:52–12:00** | OA97-03**Microscale Structure-Mechanics Coupling in Hypertrophic Cardiomyopathy***Dimosthenis Giannopoulos (Austria)***12:00–12:03** | Q&A**12:03–12:11** | OA97-04**Frequency-Dependent Changes in the Viscoelastic Properties of Porcine Brain Tissue***Laura Ruhland (Germany)***12:11–12:14** | Q&A**12:14–12:22** | OA97-05**Decidualization During Pregnancy Alters Collagen Microarchitecture and Mechanical Response of the Endometrium***Callan Luetkemeyer (United States)***12:22–12:30** | Q&A

OA98 – Biomechanics of Musculoskeletal Rehabilitation**11:30–12:40** | West 109**Track: Rehabilitation Biomechanics and Human Factors: Rehabilitation***Chair(s): Laura Diamond (Australia), Cara Lewis (United States)***11:30–11:38** | OA98-01**COP Jump Metrics Reveal Bilateral Compensation and Increased Movement Variability Following ACL-Reconstruction***Suzanne M Konz (United States)***11:38–11:41** | Q&A**11:41–11:49** | OA98-02**Knee Contact Forces of TKA Patients with Asymmetrically Shortened Crankarm Lengths during Ergometer Cycling***Songning Zhang (United States)***11:49–11:52** | Q&A**11:52–12:00** | OA98-03**Biomechanical Performance Profiling Demonstrates a Lack of Performance Readiness Compared to Isolated Benchmarks in Athletes 14 Months Post ACL Reconstruction***Zachary McClean (Canada)***12:00–12:03** | Q&A**12:03–12:11** | OA98-04**Rotator Cuff Activation in Post-operative Rehabilitation Exercises***Silvia Zanini (United States)***12:11–12:14** | Q&A**12:14–12:22** | OA98-05**The Relationship Between Changes in Cartilage Thickness and Knee Joint Contact Stress: A Comparison of Walking and Running***Shinya Ogaya (Japan)***12:22–12:25** | Q&A**12:25–12:33** | OA98-06**Understanding Hip–Spine Compensations in Low Back Pain through Biokinetic Analysis***Joshua Samaniego (United States)***12:33–12:40** | Q&A

OA99 – Hip Biomechanics: Morphology, Function, and Reconstruction

11:30–12:40 | West 110

Track: Orthopaedic Biomechanics: Lower Extremities

Chair(s): Heidi-Lynn Ploeg (Canada), Michael Samaan (United States)

11:30–11:38 | OA99-01

Joint Implant Contact Force During High-Impact Exercises in People With Hip and Knee Replacements

Bernard Liew (United Kingdom)

11:38–11:41 | Q&A

11:41–11:49 | OA99-02

Individuals With Symptomatic Hip Osteoarthritis Ambulate With Different Hip Stress Contact Locations

Holly Elliott (United States)

11:49–11:52 | Q&A

11:52–12:00 | OA99-03

Retrospective Analysis of Hip Joint Morphology: Affected versus Unaffected Joints of Hip Resurfacing Arthroplasty Patients

Emily Cameron (Canada)

12:00–12:03 | Q&A

12:03–12:11 | OA99-04

Altered Hip and Knee Between-Limb Symmetry During Sit-to-Stand in Cam-Type Femoroacetabular Impingement

Patrick Ippersiel (Canada)

12:11–12:14 | Q&A

12:14–12:22 | OA99-05

Head Center Restoration With the Cutting Guide Q-Ring During Total Hip Arthroplasty

Katja Brand (Germany)

12:22–12:25 | Q&A

12:25–12:33 | OA99-06

Comparative Biomechanics of Gluteus Medius Repair: A Finite Element Analysis

Matthew Allen (United States)

12:33–12:40 | Q&A

OA100 – Computational Modeling of Fiber-Reinforced Tissues**11:30–12:30** | West 223-224**Track: Musculoskeletal Biomechanics: Tissues***Chair(s): Egon Perilli (Australia), David Ackland (Australia)***11:30–11:42** | OA100-01**Soft Tissues Are Hard***Ellen M Arruda (United States)***11:42–11:45** | Q&A**11:45–11:53** | OA100-02**Collagen Fiber Orientation in Human Achilles Tendons Affects the Mechanical Response***Chiara Garavelli (Sweden)***11:53–11:56** | Q&A**11:56–12:04** | OA100-03**Influence of Collagen Network Dispersion on Torsional Shear Loading of Articular Cartilage With Synchrotron-Based Fibril-Reinforced Finite Element Models***Viktor Jönsson (Sweden)***12:04–12:07** | Q&A**12:07–12:15** | OA100-04**Heterogeneous Strain Distribution in Rat Achilles Tendon From Physiological Loading: A Finite Element Study***Yeswanth Pydi (Sweden)***12:15–12:18** | Q&A**12:18–12:26** | OA100-05**Modelling of Diffusion in a Hydrated Tissue Using Gyration Tensor Analysis***Leila Shahsavari (Canada)***12:26–12:30** | Q&A

OA101 – Mechanoregulation of Collective Phenomena**11:30–12:30** | West 217-219**Track: Cell Biomechanics: Mechanobiology***Chair(s): Carlijn Bouten (Netherlands), Aurélie Carlier (Netherlands)***11:30–11:42** | OA101-01**Ultrasound Controllable Mechanogenetics for Cell Therapy***Peter Yingxiao Wang (United States)***11:42–11:45** | Q&A**11:45–11:53** | OA101-02**Investigating Leader Cell Mechanics of Breast Cancer Collective Invasion Using Tumor Decellularized Matrices and Microphysiological Systems***Jessica Williamson (United States)***11:53–11:56** | Q&A**11:56–12:04** | OA101-03**Beta-Amyloid42 Oligomers Soften Neuronal Cells by Reorganization of Cytoskeleton***Yuan Feng (China)***12:04–12:07** | Q&A**12:07–12:15** | OA101-04**Mechanobiology of Schlemm's Canal Inner Wall Endothelial Cells in Glaucoma***C. Ross Ethier (United States)***12:15–12:18** | Q&A**12:18–12:26** | OA101-05**P-Cadherin Regulates Collective Migration Phenotypes During Epithelial Morphogenesis via Rho Signaling***Corinne Leonard (United States)***12:26–12:30** | Q&A

OA102 – Stent Modeling**11:30–12:30** | West 221-222**Track: Cardiovascular/Cardiorespiratory Biomechanics: Materials and Devices***Chair(s): Aseem Milind Pradhan (France)***11:30–11:42** | OA102-01**Toward Improved Treatments for Congenital and Acquired Cardiovascular Diseases by Compensating for Adverse Mechanical Stimuli***John F. LaDisa, Jr. (United States), Aseem Milind Pradhan (France)***11:42–11:45** | Q&A**11:45–11:53** | OA102-02**Engineering Reliable Bioabsorbable Magnesium Stents: A Pipeline From Computational Design Optimization to In Vitro Testing***Diego Blunda (Ireland)***11:53–11:56** | Q&A**11:56–12:04** | OA102-03**Biomechanically Optimized Peripheral Artery Stent Remonstrates Reduced Intimal Hyperplasia and Stenosis In a Swine Model***Alexey Kamenskiy (United States)***12:04–12:07** | Q&A**12:07–12:15** | OA102-04**Numerical Analysis of Knee Bending Effects on Blood Flow in a Femoral Arterial Stent Using a Centerline-Based Deformable Model***Marie Oshima (Japan)***12:15–12:18** | Q&A**12:18–12:26** | OA102-05**Hemodynamic Testing of a Composite Leaflet Material for Transcatheter Aortic Valve Replacement (TAVR)***Vivienne Zacher (United States)***12:26–12:30** | Q&A

OA103 – Comparative Locomotor Biomechanics**11:30–12:40** | West 220**Track: Comparative Biomechanics***Chair(s): Stephanie Ross (Canada), Ethan Wold (United States)***11:30–11:42** | OA103-01**Form, Function, and Evolution in the Hominoid Shoulder: Insights from 3D Kinematics of the Chimpanzee Shoulder***Evie Vereecke (Belgium)***11:42–11:45** | Q&A**11:45–11:57** | OA103-02**The Scaling of Locomotion in Australian Monitor Lizards – Investigating the Biomechanics of a Size-imposed Trap in Sprawling Animals***Robert Cieri (United States)***11:57–12:00** | Q&A**12:00–12:08** | OA103-03**Not All Hoppers Are Built for the Desert: Effects of Substrate on Hopping Kinematics of Kangaroo Rats.***Craig McGowan (United States)***12:08–12:11** | Q&A**12:11–12:19** | OA103-04**Influence of EMA and Musculoskeletal Stress Reduction on Postural Changes in Walking vs Climbing in Rats***Cassandra Shriver (United States)***12:19–12:22** | Q&A**12:22–12:30** | OA103-05**Multimaterial Models Reveal Functional Principles of Armored Fish and Bioinspired Devices***Cassandra Donatelli (United States)***12:30–12:40** | Q&A

OA104 – Biomedical and Biological Systems and Applications**11:30–12:30** | West 208-209**Track: Micro/Biofluidics: In Silico Models and Simulation***Chair(s): Jaap den Toonder (Netherlands), Michelle Spanjaards (Netherlands)***11:30–11:38** | OA104-01**Numerical Study of Drag Influence on Magnetic Micro-Particle Aggregates in Magnetic Resonance Navigation for Tumor Embolization***Mahdi Rezaei Adariani (Canada)***11:38–11:41** | Q&A**11:41–11:49** | OA104-02**A Physics-Informed Computational Model Based on Diffusion MRI for Predicting Ischaemic Stroke Evolution***Hsuan-Ju Chen (Taiwan)***11:49–11:52** | Q&A**11:52–12:00** | OA104-03**Sensitivity Analysis of Ventricular Shunt Obstructions on Cerebrospinal Fluid Drainage***Bryan Good (United States)***12:00–12:03** | Q&A**12:03–12:11** | OA104-04**Mechanical Responses and Key Parameter Identification in a Finite Element Model of the Mouse Cervical Spinal Cord under CSF Pulsatile Loading***Duzhi Chen (France)***12:11–12:30** | Q&A

LM2: Lunch Meetup 2

12:30–14:00

With more than 3,000 delegates attending the Congress, it can be difficult to find others who share your research interests or professional background. These informal Lunch Meetups are designed to help you connect with people working in similar fields, exchange ideas, and start new collaborations in a relaxed setting.

Simply grab your lunch from the Convention Centre Café on Level 1 and head to the designated meeting location for your interest group. There is no formal agenda or facilitator—just a casual opportunity to meet new people with shared interests.

Meet at the Following Locations:

Location 1 | Level 1 – Ocean Foyer (Outside Rooms 121 & 122)

- **Clinical Biomechanics**
- **Rehabilitation Biomechanics and Human Factors: Rehabilitation**

Location 2 | Level 1 – Ballroom Foyer

- **Human Motion and Performance: Locomotion/Gait**
- **Human Motion and Performance: Sports**
- **Musculoskeletal Biomechanics: Methods, Models and Applications**
- **Musculoskeletal Biomechanics: Tissues**
- **Orthopaedic Biomechanics: Lower Extremities**

Location 3 | Level 1 – Room 111

- **Micro/Biofluidics: In Silico Models and Simulation**
- **Organ and Tissue Biomechanics**

Location 4 | Level 2 – Outside Room 205

- **Cell Biomechanics: Mechanobiology**
- **Emerging Areas**

Location 5 | Level 2 – Outside Room 202

- **Cardiovascular/Cardiorespiratory Biomechanics: Materials and Devices**
- **Cardiovascular/Cardiorespiratory Biomechanics: Methods, Models and Applications**
- **Comparative Biomechanics**

LS2: Throwing Biomechanics: Fundamentals, Emergent Discoveries, and Methodological Impacts Across Sports

12:45–13:45 | West 110

Track: Human Motion and Performance: Sports

12:45–12:55 | Introduction

Antonia Zaferiou (United States), Jon Slowik (United States)

12:55–13:25 | Panelist Introductions / Talks: 5-7 minutes each

*John Challis (United States), Mark King (United Kingdom),
Hannah Houde (United States), Kenzie Friesen (Canada),
Arnel Aguinaldo (United States)*

13:25–13:45 | Moderated Panel Discussion: 15 minutes

Funding Without Borders: International Research Funding Opportunities (1/2)

12:45–13:45 | West 202 - 204

Navigating the global research funding landscape can be challenging, but international collaboration has never been more important. This session brings together representatives from leading funding agencies from around the world to provide an overview of their funding programs, priorities, and opportunities for researchers at different career stages. Learn about funding mechanisms that support international collaborations, multidisciplinary research, and investigator-driven projects, while gaining insight into current funding priorities and future directions. The session will conclude with an interactive discussion, giving delegates the opportunity to ask questions directly to funding agency representatives and better understand how to position themselves for future funding success.

Whether you are an early-career researcher looking for your first international grant or an established investigator seeking new collaborative opportunities, this session will provide valuable guidance on accessing funding beyond your own borders.

Schedule:

12:45–12:50 | Welcome and Introductions

12:50–13:00 | NSERC Presentation

13:00–13:10 | NIH Presentation

13:10–13:20 | Moderated Audience Q&A

13:20–13:45 | Networking and Informal Discussion

Professional Development Roundtables (Sign Up Required, Limited Capacity)

12:45–13:45 | Level 2 Ocean Foyer

Join this interactive roundtable session designed for students and early-career researchers to connect with experienced professionals from around the world. Unlike traditional panel discussions, participants are free to move between tables throughout the session, allowing them to engage with different experts, explore multiple areas of interest, and tailor the experience to their own career goals. This informal and dynamic format encourages open conversation, practical advice, networking, and meaningful connections across academia, industry, and clinical practice.

Due to limited capacity, advance sign-up is required.

Roundtable 1: Navigating International Funding & Research Opportunities

Experts:

- Amy Lenz (United States)
- Lisa Prah (Sweden)
- Xiaoyu Du (China)

Roundtable 2: Cultural Differences in Scientific Practice

Experts:

- Kota Takahashi (United States)
- Julio Mello (Chile)

Roundtable 3: Emerging Technologies in Biomechanics

Experts:

- Scott Uhlrich (United States)
- Svetlana Komarova (Canada)
- Kat Steele (United States)

Roundtable 4: Doing a Postdoc Abroad: Perspectives & Pathways

Experts:

- Cecilia Monoli (United States)
- Guillaume Durandau (Canada)
- Monika Colombo (Denmark)

Roundtable 5: Global Challenges in Biomechanics Research

Experts:

- Jason Franz (United States)
- Calvin Kuo (Canada)
- Anna-Maria Lephard (Germany)

Roundtable 6: Career Pathways Inside and Outside Academia*Experts:*

- Robin Queen (United States)
- Katja Mombaur (Canada)
- Ralph Müller (Switzerland)
- Amanda Hunt (United States)

Roundtable 7: Mentorship and Leadership Across Career Stages*Experts:*

- Peter Fino (United States)
- Lauren Welte (Canada)
- Peter Augat (Austria)

Roundtable 8: Open Science and Collaboration in Biomechanics*Experts:*

- Scott Delp (United States)
- Justin Fernandez (New Zealand)
- Kat Daniels (United Kingdom)
- Vani Sundaram (Germany)

Roundtable 9: Careers in Industry*Experts:*

- Amanda Hunt (United States)
- Felix Tsui (United States)

ASB Plenary & Award Session

14:00–17:00 | West 211-214

14:00–14:45 | ASB Pre-Doctoral Award & Early Career Achievement Award Presentations

14:00–14:05 | ASB Opening Remarks

14:05–14:25 | Pre-Doctoral Award Presentation and Q/A

This award recognizes early achievements by promising scientists prior to the award of their PhD

DynamicsNet: Rapid Human Motion Dynamics for Out-of-Lab Injury Risk Screening
Janelle Kaneda (United States)

14:25–14:45 | Early Career Achievement Award Presentation and Q/A

This award recognizes early achievements by promising scientists who are within five years of receiving their PhD.

AI-Driven Wearable Robotic Exoskeletons: From Task Generalization to User Personalization

Inseung Kang (United States)

14:45–15:30 | Borelli Award Presentation

Computational Design of Personalized Treatments for Movement Impairments: From Vision to Reality

BJ Fregly (United States)

15:30–16:00 | Coffee Break in the Exhibit Hall

16:00–17:00 | Hay Award Symposium

Bryan Heiderscheit (United States)

CSB Plenary & Award Session**14:00–17:00** | West 301**14:00–14:40** | MSc Award Presentations**14:00–14:13** | CSB01**The Effects of Lumbar Extensor Muscle Fatigue on Trunk Neuromuscular Control during Medio-Lateral Perturbations in Contact-Collision Athletes.***Juliana Bossom (Canada)***14:13–14:26** | CSB-02**Longitudinal Analysis Reveals the Distribution of Early Peri-Articular Bone Changes Mirrors Traumatic Bone Marrow Lesions Following Acute Knee Injury***Nina Pavlovic (Canada)***14:26–14:39** | CSB-03**Applying Load to the Wrist Reveals 3D Carpal Malalignment Following Scapholunate Interosseous Ligament Injury***Justen Saini (Canada)***14:40–15:20** | PhD Award Presentations**14:40–14:53** | CSB-04**Using Biplanar Videoradiography to Quantify the Accuracy of Person-Specific Knee Models in Simulating Patellofemoral Kinematics for a Variety of Dynamic Tasks***Annagh Macie (Canada)***14:53–15:06** | CSB-05**Directional Dependence of Multiscale White Matter and Axonal Injury Metrics from Real-World Head Impacts***Zaryan Masood (Canada)***15:06–15:19** | CSB-06**Normative Modeling of Gait Biomechanics for Personalized and Multisite Clinical Assessment***Jereme Outerleys (Canada)***15:20–15:50** | Coffee Break in the Exhibit Hall**15:50–16:25** | Early Career Award Winner Presentation*Presenter: Anthony Gatti (United States)***16:25–17:00** | Panel Discussion**Two Steps Forward, One Step Back: Reflections and Advice on a Career in Biomechanics.***Panelists: Julie Cote (Canada), Wayne Albert (Canada), and Jack Callaghan (Canada)*

ESB Plenary & Award Session

14:00–17:00 | West Ballroom A

14:00–14:40 | Open Session and History of ESB

Chaired by Enrico Dall'Ara (United Kingdom) and Aurelie Carlier (Netherlands), with a presentation by Marco Viceconti (Italy)

14:40–15:30 | ESB Award Session

Chaired by Philipp Thurner (Austria) and Michele Conti (Italy)

14:40–14:45 | Introduction

14:45–15:00 | Student Award Lecture

Exploring Carotid Plaque Rupture Risk Using Non-Invasive MRI Quantitative Susceptibility Mapping Validated by Comprehensive Multimodal Imaging

Francesco Digeronimo (Ireland)

15:00–15:15 | Best PhD Thesis Award Lecture

In-Silico High-Fidelity Modelling of Endovascular Aortic Intervention

Anna Ramella (Italy)

15:15–15:30 | Early Career Researcher Award Lecture

Multi-Metamaterial and Region-Specific Biomimetic Auxetic Scaffolds Guide the Regeneration of the Whole Bone-Enthesis-Tendon Chain: A Multiscale In Vitro and In Vivo Study

Alberto Sensini (Netherlands)

15:30–16:00 | Coffee Break in the Exhibit Hall

16:00–17:00 | ESB Debate

Moderated by Ralph Müller (Switzerland)

Motion: Alternative, In Vitro, and In Silico Methods Will Replace Animal Models in Biomechanics.

For the Motion: Lies Geris (Belgium) and Keita Ito (Netherlands) (WCB Council Team)

Against the Motion: Hanna Isaksson (Sweden) and Peter Varga (Switzerland) (ESB Council Team)

Theia Product Theater

15:30–15:45 | Product Theater – Exhibit Hall

Theia3D Apex: The Next Evolution of Markerless Motion Capture for Biomechanics. Please join Marcus Brown, CEO of Theia, as he provides a seminal update on Theia's latest software release and a glimpse into the product roadmap for Theia3D in biomechanics.



ASB General Assembly

17:15–18:15 | West 211-214

CSB General Assembly

17:15–18:15 | West 301

ESB General Assembly

17:15–18:00 | West Ballroom A

ESB 50th Anniversary Reception (Sign Up Required)

18:00–19:00 | Ballroom Foyer

Program

TUESDAY, July 14

Fun Run (Limited Capacity, Sign Up Required)

07:00–07:40 | Meeting Point: Vancouver Convention Centre, West Building, Burrard Street Entrance, Under the Globe



sponsored by

PL07 – Virtual Hearts, Real Patients: Personalizing Cardiac Models at Scale and in the Community

08:30–09:15 | West Ballroom A

Track: Cardiovascular/Cardiorespiratory Biomechanics: Methods, Models and Applications

Chair(s): David Nordsletten (United States), Merryn Tawhai (New Zealand)

08:30–09:00 | PL07-01

Virtual Hearts, Real Patients: Personalizing Cardiac Models at Scale and in the Community

Steven Niederer (United Kingdom)

09:00–09:15 | Q&A

PL08 – Science Beyond Experimental Measures: Where Simulations Meet Clinical Questions...

08:30–09:15 | West 211-214

Track: Clinical Biomechanics

Chair(s): Marlene Mengoni (United Kingdom), Nico Verdonshot (Netherlands)

08:30–09:00 | PL08-01

'Science Beyond Experimental Measures' – Where Simulations Meet Clinical Questions...

Ilse Jonkers (Belgium)

09:00–09:15 | Q&A

ES11 – Translational Technology Pitch Competition**09:30–11:00** | West 215-216**Track: Emerging Areas****09:30–09:35** | Opening Remarks*Lyle Hood (United States), Ethan Kung (United States)***09:35–10:59** | Featured Presentations and Q&A: Six presentations, each consisting of a 10-minute presentation followed by 4 minutes of Q&A**Reachable: A Portable, Wearable Robot for Restoring Arm Function and Independence in Stroke Survivors***James Arnold and David Pont (United States)***A Battery-Free, Gait-Responsive Knee Brace That Activates Only During the Stance Phase***Clark Dickerson (Canada)***SonoTrak: A Multi-Site Wearable Ultrasound Platform for Real Time, Muscle Level Assessment During Dynamic Human Movement***Erica L. King (United States)***Wearable Sensing and Machine Learning to Optimize Knee Joint Health***Jason R. Franz (United States)***Programming Endothelial Stability Through Shear–Vorticity Control: A Geometry-Based Platform for Hemocompatible Cardiovascular Implants***Aminat M. Ibrahim (United States)***Sensory Neuromodulation for Neuroplastic Restoration of Impaired Balance and Gait in Older Adults***John Ralston (United States)***10:59–11:00** | Closing Remarks

OA105 – Clinical Practice – Hip**09:30–10:40** | West Ballroom A**Track: Clinical Biomechanics***Chair(s): Brecca Gaffney (United States), Basílio Gonçalves (Austria)***09:30–09:38** | OA105-01**Longitudinal Assessment of Sensor-Derived Gait Quality and Clinical Functional Outcomes Following Total Hip Arthroplasty.***Jiahui Wang (Belgium)***09:38–09:41** | Q&A**09:41–09:49** | OA105-02**Longitudinal Changes in Strength, Physical Activity, Mobility, and Pain Following Periacetabular Osteotomy for Hip Dysplasia***Christina Bourantas (United States)***09:49–09:52** | Q&A**09:52–10:00** | OA105-03**A DXA-Based Hip 3D Finite Element Model Predicts Hip Fractures Better Than Hip aBMD Independently of FRAX Scores in a MrOS Sub-Cohort***Lorenzo Grassi (Sweden)***10:00–10:03** | Q&A**10:03–10:11** | OA105-04**Phenotypic Variability in Developmental Dysplasia of the Hip: Linking Acetabular Geometry to Pain, Function, Activity, and Strength***Christina Bourantas (United States)***10:11–10:14** | Q&A**10:14–10:22** | OA105-05**The Effect of Simulated Movement Training on Joint Forces in Patients with Hip Dysplasia***Madison Wissman (United States)***10:22–10:25** | Q&A**10:25–10:33** | OA105-06**Hip Range of Motion Is a Weak Predictor of Femoral Neck Version in Patients With Patellofemoral Pain Syndrome***Marcos Amstalden Barros (United States)***10:33–10:40** | Q&A

OA106 – Cognition and Gait**09:30–10:40** | West 211-214**Track: Human Motion and Performance: Locomotion/Gait***Chair(s): Rakie Cham (United States), Kat Daniels (United Kingdom)***09:30–09:38** | OA106-01**Understanding How People Prioritize Movement Goals During Overground Walking***Patrick Slade (United States)***09:38–09:41** | Q&A**09:41–09:49** | OA106-02**Biomechanical Factors Influencing Effort and Risk Trade-Offs in Walking***Jackeline Tafur-Oviedo (United States)***09:49–09:52** | Q&A**09:52–10:00** | OA106-03**Poincaré-Based Metrics Detect Cognitive–Motor Impairment During Dual-Task Gait***Kristin Morgan (United States)***10:00–10:03** | Q&A**10:03–10:11** | OA106-04**Effects of One Night of Sleep Deprivation on Gait: Evidence From Single- and Dual-Task Walking***Anna C. Render (United States)***10:11–10:14** | Q&A**10:14–10:22** | OA106-05**Dual-Task Effects on Gait Balance Control Stability in Older Adults Using A Single IMU with AI Techniques***Yi-Yun Cheng (Taiwan)***10:22–10:25** | Q&A**10:25–10:33** | OA106-06**Influence of Cognitive Dual-Task on Stride Frequency in Older Adults***Haley Hentnik (United States)***10:33–10:40** | Q&A

OA107 – Footwear Session 1**09:30–10:40** | West 301**Track: Human Motion and Performance: Sports***Chair(s): Katherine Batista (Canada), Kamen Wong (United States)***09:30–09:42** | OA107-01**Advances in Footwear Biomechanics***Evan Day (United States)***09:42–09:45** | Q&A**09:45–09:53** | OA107-02**Why Foot Model Choice Matters: Rethinking Ankle Kinematics in Running Shoe Research***Jamie Ferris (United States)***09:53–09:56** | Q&A**09:56–10:04** | OA107-03**Evaluating the Shifty Agility Drill: Repeatability and Footwear Sensitivity of a Novel Court Sport Agility Test***Bryan Picco (United States)***10:04–10:07** | Q&A**10:07–10:15** | OA107-04**On-Field Validation of Second-Generation Female-Specific Soccer Cleats Using Wearable Sensors and Predictive Computational Modeling***Alex Denton (United States)***10:15–10:18** | Q&A**10:18–10:26** | OA107-05**Wrapping Cycling Shoes Improves Cycling Performance Over Laces***Eric Honert (United States)***10:26–10:29** | Q&A**10:29–10:37** | OA107-06**Effects of Advanced Footwear Technology (AFT) on Running Biomechanics***Hyeong-Sik Kim (Korea, Republic of)***10:37–10:40** | Q&A

OA108 – Aneurysms**09:30–10:30** | West 302-305**Track: Cardiovascular/Cardiorespiratory Biomechanics: Materials and Devices***Chair(s): Jessica Wagenseil (United States)***09:30–09:42** | OA108-01**Finite Element and Machine Learning Modelling for Real-Time Simulations in Endovascular Surgery of Cerebral Aneurysms***Beatrice Bisighini (France)***09:42–09:45** | Q&A**09:45–09:53** | OA108-02**Tornadic Phenomena in Cerebral Aneurysms: Towards New Definitions of Hostile Hemodynamics***Valentina Mazzi (Italy)***09:53–09:56** | Q&A**09:56–10:04** | OA108-03**Effect of Estrogen on Thoracic Aortic Aneurysm Development and Progression in a Mouse Model of Marfan Syndrome***Jessica Wagenseil (United States)***10:04–10:07** | Q&A**10:07–10:15** | OA108-04**Geometry-Aware Abdominal Aortic Aneurysm Digital Twins for Patient-Specific Wall Stress Mapping***Ender A. Finol (United States)***10:15–10:30** | Q&A

OA109 – Optimization of Neuromuscular Control in Human Movement

09:30–10:40 | West 202-204

Track: Musculoskeletal Biomechanics: Methods, Models and Applications

Chair(s): Michael Asmussen (Canada), Scott Uhlrich (United States)

09:30–09:38 | OA109-01

Reversal of Dominant Loading Direction Along the Cervical Spine During Multidirectional Head Resistance: Insights From a Nonlinear 3D FE Model

Wissal Mesfar (Saudi Arabia)

09:38–09:41 | Q&A

09:41–09:49 | OA109-02

Late-Stage Knee Osteoarthritis Patients with Joint Pain Experience Small Variability in Knee Joint Contact Forces During Walking

Atte Eskelinen (Finland)

09:49–09:52 | Q&A

09:52–10:00 | OA109-03

Neuromusculoskeletal Control of Foot Stabilization During Ground Contact

Michael Asmussen (Canada)

10:00–10:03 | Q&A

10:03–10:11 | OA109-04

Neuromuscular Modeling of the Human Eyelid

Jinyoung Kim (United States)

10:11–10:14 | Q&A

10:14–10:22 | OA109-05

The Muscle Spindle Behaves as a Tunable Feedback Controller During Perturbed Locomotion

Surabhi N. Simha (United States)

10:22–10:25 | Q&A

10:25–10:33 | OA109-06

An EMG-Informed 6DOF Knee Musculoskeletal Model for Deep Squat Tasks: Application in ACL Injury Prevention

Maria Dalle Vacche (Italy)

10:33–10:40 | Q&A

OA110 – Biomechanics of Cancer and Gastric Diseases**09:30–10:30** | West 205-207**Track: Organ and Tissue Biomechanics***Chair(s): Merryn Tawhai (New Zealand), Stephen Thorpe (Ireland)***09:30–09:42** | OA110-01**From Cell-scale to Tissue and Organ-scale Biomechanical Modelling of Cancer***Vasileios Vavourakis (Cyprus)***09:42–09:45** | Q&A**09:45–09:53** | OA110-02**Experimental and Computational Modelling Framework for Detecting Bladder Microcontractions***James Fox (Switzerland)***09:53–09:56** | Q&A**09:56–10:04** | OA110-03**Temporal Differential Growth Drives Sequential Midgut Protrusion, Rotation, and Retraction: A Computational Simulation Study.***Michina Saiki (Japan)***10:04–10:07** | Q&A**10:07–10:15** | OA110-04**A Computational Framework for Evaluating AMS 800 Artificial Urinary Sphincter Behaviour Across Patient-Specific Urethral Anatomies***Conall Quinn (Ireland)***10:15–10:30** | Q&A

OA111 – Neurorehabilitation Technologies**09:30–10:30** | West 109**Track: Rehabilitation Biomechanics and Human Factors: Rehabilitation***Chair(s): Liesbet Geris (Belgium)***09:30–09:38** | OA111-01**NeuroRecoVR: Split-Belt Virtual Reality Treadmill Training for Subacute Stroke***Alexa Boyer (Canada)***09:38–09:41** | Q&A**09:41–09:49** | OA111-02**Sit, Stand, Activate! Quantifying Muscle Activity During Mobility Aid Use in Young Children With Developmental Disabilities***Mia Hoffman (United States)***09:49–09:52** | Q&A**09:52–10:00** | OA111-03**Memory-Anchored Gestures and Visual Feedback Improve Motor Learning Efficiency and Consistency in VR***Zachary Marvin (United States)***10:00–10:03** | Q&A**10:03–10:11** | OA111-04**Real-Time Modulation of Split-Belt Treadmill Speed Enhances Gait Propulsion and Neuromuscular Engagement in Post-Stroke Hemiparesis***Beom Chan Lee (United States)***10:11–10:14** | Q&A**10:14–10:22** | OA111-05**Functional Mobility and User-Defined Goals in Active Individuals with Transfemoral Amputation: A Randomized Cross-over Trial Assessing Objective and Subjective Parameters***Victoria Spartacus (France)***10:22–10:30** | Q&A

OA112 – 3 Minute Thesis**09:30–10:30** | West 110**Track: Biomechanics Education, Knowledge Translation and Outreach***Presenters***Picking Up the Slack: How Fatigue Turns Your Hamstrings Against Each Other***Leon Lobe (Austria)***Can AI Reconstruct Gait Motion from Any Wearable Sensor Setup?***Run Lin (United Kingdom)***Characterizing the Nonlinear Mechanical Behavior of Ex Vivo Brain Tissue for Advancing Brain Injury Models***Olivia Bailey (United States)***Characterizing Propulsion Strategies in Baseball Pitching: A Biomechanical Framework Linking Trail Limb Function to Throwing Arm Loading***Adam Barrack (United States)***Digital Twin for Fracture Healing***Felix Scherf (Germany)***Too Much Phosphate, Too Little Loading... A Recipe for Weaker Bones?***Alejandra Correa-Belloso (Canada)***Wireless Mechanical Stimulation Upregulates the Foreign Body Response to Biomedical Implants Through Immune Cell Pathways***Emily Galvin (United States)***Four-Dimensional Computed Tomography (4DCT) Imaging of the Wrist: Improving Diagnostics of Scapholunate Joint Instability***Maranda Haenen (Netherlands)***Beyond Passive Devices: Achieving Biological-Like Function in Lower-Limb Prostheses***Karen Walker (United States)***Extended Law of Intersegmental Coordination for Powered Prosthetic Control***Elad Siman Tov (Israel)*

OA113 – MSK Tissue Development**09:30–10:30** | West 223-224**Track: Musculoskeletal Biomechanics: Tissues***Chair(s): Barbara Chan (Hong Kong), Catherine Kuo (United States)***09:30–09:42** | OA113-01**The Effects of Mechanical Properties on Limb Development***Sandra Shefelbine (United States)***09:42–09:45** | Q&A**09:45–09:53** | OA113-02**High Dietary Phosphate and Simulated Microgravity Affect Bone Mechanical Integrity in a Spaceflight Animal Model***Alejandra Correa-Belloso (Canada)***09:53–09:56** | Q&A**09:56–10:04** | OA113-03**A 3D Perspective on Morphological Changes in Cortical Bone of the Femur from Growth to Ageing***Thor Besier (New Zealand)***10:04–10:07** | Q&A**10:07–10:15** | OA113-04**A New Perspective on Cartilage Biology: 3D Characterisation of Chondrocyte Morphology and Organisation Across Postnatal Development.***Karin Vancíková (Ireland)***10:15–10:18** | Q&A**10:18–10:26** | OA113-05**In Vivo Mechanical Loading Induces Site-Specific, Partially Reversible Tissue Adaptation in Vertebrae***Cosima Erhard (Germany)***10:26–10:30** | Q&A

OA114 – Mechanoregulation of the ECM-Cell Crosstalk I**09:30–10:30** | West 217-219**Track: Cell Biomechanics: Mechanobiology***Chair(s): Peter Wang (United States)***09:30–09:42** | OA114-01**Deciphering and Reconstructing the Biomechanical Microenvironment of Tissue Fibrosis***Yanan Du (China)***09:42–09:45** | Q&A**09:45–09:53** | OA114-02**Engineering Aortic Valves via Transdifferentiating Fibroblasts Into Valvular Endothelial Cells Without Using Viruses or IPS Cells***Junwei Chen (China)***09:53–09:56** | Q&A**09:56–10:04** | OA114-03**Substrate Convexity Induces Nuclear Flattening That Triggers Phenotype Marker Expression Change in Vascular Smooth Muscle Cells***Yuga Isobe (Japan)***10:04–10:07** | Q&A**10:07–10:15** | OA114-04**In Vitro Validation of an Implantable 3D Microengineered Tumor Model for Investigating Fibrosis Remodelling-Associated Drug Response***Giada Mainieri (Italy)***10:15–10:18** | Q&A**10:18–10:26** | OA114-05**The Role of Focal Adhesion Kinase in ACL Fibroblast Response to Slow Stretch Elongation Depends on Degree of Hierarchical Fiber Formation***Kelly Ott (United States)***10:26–10:30** | Q&A

OA115 – Cerebral Devices and Procedures**09:30–10:30** | West 221-222**Track: Cardiovascular/Cardiorespiratory Biomechanics: Materials and Devices***Chair(s): Michele Conti (Italy), Makoto Ohta (Japan)***09:30–09:42** | OA115-01**Thrombus Mechanics: from Reproducibility Assessment to Clinical Recommendations for Endovascular Thrombectomy in Stroke***Frank Gijssen (Netherlands)***09:42–09:45** | Q&A**09:45–09:53** | OA115-02**Sensitivity of Frictional Interactions During Mechanical Thrombectomy: In Silico and In Vitro Investigations***Francesco Migliavacca (Italy)***09:53–09:56** | Q&A**09:56–10:04** | OA115-03**Modelling Mechanical Thrombectomy in Silico: A Validation Study***Virginia Fregona (Italy)***10:04–10:07** | Q&A**10:07–10:15** | OA115-04**Effect of Stent Retriever Behavior on Clot Removal Success During Mechanical Thrombectomy***Bryan Good (United States)***10:15–10:18** | Q&A**10:18–10:26** | OA115-05**How Histopathological Determinants Shape Viscoelastic Mechanical Properties of Thrombi in Acute Ischemic Stroke***Luca Bontempi (Netherlands)***10:26–10:30** | Q&A

OA116 – The World Celebrates Biomechanics: 10 Years of Outreach Through National Biomechanics Day

09:30–10:30 | West 220

Track: Biomechanics Education, Knowledge Translation and Outreach

Chair(s): Felipe Carpes (Brazil), Scott Monfort (United States)

09:30–09:42 | OA116-01

The World Celebrates Biomechanics: 10 Years of Outreach Through National Biomechanics Day

Paul DeVita (United States)

09:42–09:45 | Q&A

09:45–09:53 | OA116-02

Impact of a Humanoid Robot-Assisted, Space-Themed, Physical Activity Program

Georgia Roula Kouvoutsakis (United States)

09:53–09:56 | Q&A

09:56–10:04 | OA116-03

Cardiovascular Biomechanics Workshop for High School Students

Fanette Chassagne (France)

10:04–10:30 | Q&A

SS1 – Beyond the Lab – Growing Your Biomechanics Network**09:30–10:30** | West 208-209**09:30–09:45** | Welcome and Speaker Introductions*Kurt Beschorner (United States)***09:45–10:00** | Networking Foundations & Strategies*Anja Niehoff (Germany), Valentina Graci (United States), Kurt Beschorner (United States), Ariana Ortigas Vasquez (Switzerland)***10:00–10:15** | Interactive Activity: Craft Your Elevator Pitch**10:15–10:30** | Q&A and Open Discussion

Coffee Break and Poster Viewing Day 3 With Presenters in Attendance

10:30–11:30 | Exhibit Hall – West Ballroom BCD

Locations are referenced as you enter the Exhibit Hall.

GREEN – Foyer Outside Entrance to Exhibit Hall

Emerging Areas

Rows 1–6 • P3-001–P3-064

Injury Biomechanics

Rows 6–10 • P3-065–P3-116

RED – Right Wall

Injury Biomechanics

Rows 11–26 • P3-117–P3-147

Organ and Tissue Biomechanics

Rows 26–34 • P3-148–P3-164

BLUE – Back Wall in the Center

Organ and Tissue Biomechanics

Rows 35–38 • P3-165–P3-197

Orthopaedic Biomechanics: Lower Extremities

Rows 38–42 • P3-198–P3-244

YELLOW – Left Side by the Windows and the Product Theater

Orthopaedic Biomechanics: Lower Extremities

Rows 43–46 • P3-245–P3-277

Orthopaedic Biomechanics: Spine

Rows 46–49 • P3-278–P3-311

Orthopaedic Biomechanics: Sports Medicine

Rows 49–51 • P3-312–P3-326

Orthopaedic Biomechanics: Trauma and Repair

Rows 51–53 • P3-327–P3-351

Orthopaedic Biomechanics: Upper Extremities

Rows 53–56 • P3-352–P3-385

ES12 – Not So Neutral: AI's Hidden Bias in Biomechanics**11:30–12:30** | West 215-216**11:30–11:35** | Introduction to AI Bias*Jennifer Nichols (United States)***11:35–11:45** | Biases & Participant Selection: Considerations for Experiments and Simulations*Karen Kruger (United States), Anne Koelewijn (Germany).***11:45–11:55** | Biases in Large Datasets: Are More Samples Always Better?*Jennifer Nichols (United States), Ashwini Kulkarni (United States).***11:55–12:05** | Educating Patients, Students, & Researchers on AI Bias*Brooke Odle (United States), Vaishnavi Chiddarwar (United States).***12:05–12:15** | Interactive Activity**12:15–12:30** | Q&A and Closing Remarks

OA117 – Clinical Practice – Knee OA**11:30–12:40** | West Ballroom A**Track: Clinical Biomechanics***Chair(s): Seunghum Koo (South Korean), Gloria Scanagatta (Belgium)***11:30–11:38** | OA117-01**Stance-Phase Kinematic Biomarkers Differentiate Total Knee Replacement From Conservative Management in Women With Moderate Knee Osteoarthritis***Mayra Alejandra Loayza-Saldaña (Spain)***11:38–11:41** | Q&A**11:41–11:49** | OA117-02**Knee Adduction Moment Is Associated With Acute Cartilage Deformation Following Walking in Adults With Clinical Knee Osteoarthritis***Erin C.S. Lee (Canada)***11:49–11:52** | Q&A**11:52–12:00** | OA117-03**Cartilage Volume and Composition in Masters Runners With and Without Knee Osteoarthritis: Changes Immediately Following a Run and After a 12-Week Progressive Distance Running Program***Michael A. Hunt (Canada)***12:00–12:03** | Q&A**12:03–12:11** | OA117-04**A Markerless, Autoencoder-Derived Gait Quality Index for Knee Osteoarthritis***Julia Irvine (Canada)***12:11–12:14** | Q&A**12:14–12:22** | OA117-05**Infrapatellar Fat Pad Volume and Knee Joint Running Biomechanics in Runners With a History of Knee Surgery: Data From the TRAIL Cohort***Danilo De Oliveira Silva (Australia)***12:22–12:25** | Q&A**12:25–12:33** | OA117-06**Time-Frequency Analysis of Muscle Activation Patterns in People With Knee Osteoarthritis During Walking***Taewoong Kong (Korea, Republic of)***12:33–12:40** | Q&A

OA118 – Neurosensory Control of Gait**11:30–12:40** | West 211-214**Track: Human Motion and Performance: Locomotion/Gait***Chair(s): Kat Steele (United States), Basilio Goncalves (Austria)***11:30–11:38** | OA118-01**Anterior Trunk Leaning Does Not Alter Recovery Time and Sagittal Whole-Body Angular Momentum After Perturbations in Human Running***Luca Braun (Germany)***11:38–11:41** | Q&A**11:41–11:49** | OA118-02**Watch Your Step: Stepping Error Increases With Age in Response to Perturbing Visual Cues***Adam Grimmitt (United States)***11:49–11:52** | Q&A**11:52–12:00** | OA118-03**Preferred Locomotor Patterns Minimize Head Motion Variability***Liam Foulger (Canada)***12:00–12:03** | Q&A**12:03–12:11** | OA118-04**Does Peripheral Vision Restriction Alter Walking Function?***Jasmine Bubier-Hunter (United States)***12:11–12:14** | Q&A**12:14–12:22** | OA118-05**Brachial Plexus Injury Impairs Upper Limb and Trunk Kinematics during Self-Selected Walking and Tandem Gait***Aline Dalfito Gava (Brazil)***12:22–12:25** | Q&A**12:25–12:33** | OA118-06**Different Visual Scanning Strategies Are Associated With Improved Mobility in Adults With and Without Glaucoma***Michelle Harter (United States)***12:33–12:40** | Q&A

OA119 – Footwear Session 2**11:30–12:40** | West 301**Track: Human Motion and Performance: Sports***Chair(s): Hermann Schwameder (Austria), Kat Daniels (United Kingdom)***11:30–11:38** | OA119-01**Cleat Engagement Patterns used by Elite American Football Athletes during Peak Utilized Translational Traction***Cody M. O’Cain (United States)***11:38–11:41** | Q&A**11:41–11:49** | OA119-02**Absolute Energy Returned from the Forefoot of Advanced Footwear is Strongly Related to Reduced Metabolic Cost***Eddie Martinez (United States)***11:49–11:52** | Q&A**11:52–12:00** | OA119-03**The Effects of Advanced Footwear Technology Shoes on Hip Joint Loading in Female Runners***Maria J. Rodriguez (Canada)***12:00–12:03** | Q&A**12:03–12:11** | OA119-04**The Effect of Advanced Footwear Technology Spikes’ Midsole Stiffness on the Biomechanics and Metabolic Cost of Running of Elite and Sub-Elite Distance Runners***Luis Morata-Moreno (United States)***12:11–12:14** | Q&A**12:14–12:22** | OA119-05**The Effect of Footwear Stack Height and Outsole Traction on Ankle and Knee Kinematics during Downhill Trail Running***Kathy Reyes (United States)***12:22–12:25** | Q&A**12:25–12:33** | OA119-06**Foot-Stiffening Socks May Improve Running Economy***Kamen Wong (United States)***12:33–12:40** | Q&A

OA120 – Heart Valves 1**11:30–12:30** | West 302-305**Track: Cardiovascular/Cardiorespiratory Biomechanics: Methods, Models and Applications***Chair(s): Ali Akyildiz (Netherlands), Fanette Chassagne (France)***11:30–11:42** | OA120-01**Advanced Computational Methods for High Speed Heart Valve Simulations.***Michael Sacks (United States)***11:42–11:45** | Q&A**11:45–11:53** | OA120-02**Comparative Analysis of Resistive Immersed Surface and Immersed Boundary Methods for Aortic Valve Hemodynamics***Han Zhao (United States)***11:53–11:56** | Q&A**11:56–12:04** | OA120-03**A Novel Computational Pipeline to Predict Hypoattenuating Leaflet Thickening Following Transcatheter Aortic Valve Replacement Using Pre-Procedural Computed Tomography Scans***Aniket Venkatesh (United States)***12:04–12:07** | Q&A**12:07–12:15** | OA120-04**Fluid-Structure Interaction Model of a Neonatal Quadricuspid Valve***Karoline-Marie Bornemann (United States)***12:15–12:18** | Q&A**12:18–12:26** | OA120-05**3D Simulations of Electrospun Biomaterials for Replacement Heart Valves***Ulas Akyuz (United States)***12:26–12:30** | Q&A

OA121 – Motor Vehicle-Related Injury**11:30–12:30** | West 202-204**Track: Injury Biomechanics***Chair(s): Ken Monson (United States), Claire Baker (United Kingdom)***11:45–11:53** | OA121-01**Anti-Rotation Load-Leg in Infant Car Seats Under Misuse Conditions***Suman Chowdhury (United States)***11:53–11:56** | Q&A**11:56–12:04** | OA121-02**Identifying Predictors of Lap-Belt Submarining Through ROC-Based Metric Selection in Finite Element Simulations of 50th Percentile Male HBMs and ATDs***Alex Kalmar-Gonzalo (United States)***12:04–12:07** | Q&A**12:07–12:15** | OA121-03**Computational Reconstruction of 30 Real-World Motorcycle Collisions With Facial Impact to Guide Future Helmet Standards***Lucas Low (United Kingdom)***12:15–12:18** | Q&A**12:18–12:26** | OA121-04**Advancing Biofidelity: Subject-Specific Validation of Whole-Body Human Models for Frontal Impacts***Sujata Khandare (United States)***12:26–12:30** | Q&A

OA122 – Biomechanics of Bone Metabolism and Osteoporosis**11:30–12:40** | West 205-207**Track: Organ and Tissue Biomechanics***Chair(s): Thor Besier (New Zealand), Jerome Noailly (Spain)***11:30–11:38** | OA122-01

Tendon Fibrils and Fascicles of the oim Mouse Model of Osteogenesis Imperfecta Exhibit Signs of Increased Advanced Glycation End Product (AGE) Crosslinking
Philipp J. Thurner (Austria)

11:38–11:41 | Q&A**11:41–11:49** | OA122-02

The Hidden Influence of Osteoporosis on Bone Regeneration During Distraction Osteogenesis
Esther Reina-Romo (Spain)

11:49–11:52 | Q&A**11:52–12:00** | OA122-03

3D-DXA–Based Finite Element Models Improve Hip Fracture Prediction versus aBMD in the Japanese Population-Based Osteoporosis (JPOS) Cohort Study
Elham Alizadeh (Spain)

12:00–12:03 | Q&A**12:03–12:11** | OA122-04

Mechanical Loading Supports Targeted Modeling More Than Remodeling When Combined With Anabolic Pharmacological Treatment
Friederike A Schulte (Switzerland)

12:11–12:14 | Q&A**12:14–12:22** | OA122-05

The Effect of Short-Term Continuous Administration of Alendronate on Bone Quality and Strength of Rabbit Tibia
Tsolmonbaatar Khurelbaatar (Canada)

12:22–12:25 | Q&A**12:25–12:33** | OA122-06

Evaluating Hip Fracture Risk Through 3D-DXA FE Mechanical Descriptors: A Comparison of Abaqus and MoFEM
Abdollah MoslemiVaraki (Spain)

12:33–12:40 | Q&A

OA123 – Neuromechanical Interventions in Rehabilitation**11:30–12:30** | West 109**Track: Rehabilitation Biomechanics and Human Factors: Rehabilitation***Chair(s): Arash Arami (Canada), Seungmoon Song (United States)***11:30–11:38** | OA123-01**A Shoe-Integrated Soft Actuator System for Augmenting Plantarflexion During Walking***Ahad Behboodi (United States)***11:38–11:41** | Q&A**11:41–11:49** | OA123-02**Virtual Reality Design Influences Biomechanical Adaptation and Motor Strategies to a Novel Prosthesis Sorting Task***Kenneth M Mazariegos (United States)***11:49–11:52** | Q&A**11:52–12:00** | OA123-03**Hands-On vs. Teleoperated Assistance: Exploratory Findings from a Single Therapist Training Artificially Impaired Treadmill Walkers***Julia Manczurowsky (Canada)***12:00–12:03** | Q&A**12:03–12:11** | OA123-04**Quantifying Play Interactions: Implementation of a Digital Switch-Accessible Play Kit for Young Children Receiving Early Intervention Services***Mia Hoffman (United States)***12:11–12:14** | Q&A**12:14–12:22** | OA123-05**The Effects of Spasticity on Gait: A Comparison Between Predictive Simulations and Expert Consensus***Marjolein van der Krogt (Netherlands)***12:22–12:30** | Q&A

OA124 – Human-Environmental Interactions Related to Balance and Postural Control

11:30–12:30 | West 110

Track: Human Motion and Performance: Balance, Posture and Control

Chair(s): Marc Carpenter (Canada), Sabrina Lee (Canada)

11:30–11:42 | OA124-01

A Novel Self-Balancing Ball-Based Mobility Device Controlled With Torso Motion

Elizabeth Hsiao-Wecksler (United States)

11:42–11:45 | Q&A

11:45–11:53 | OA124-02

Mechanical Demand Shapes Anticipatory Kinematic Adjustments in Landing From a Countermovement Jump: Evidence From a Microgravity Paradigm

Clement Gambelli (South Africa)

11:53–11:56 | Q&A

11:56–12:04 | OA124-03

Elevated Mediolateral Slip Risk through Comprehensive Friction Demands during Walking in Unilateral Transfemoral Amputees

Shunta Kobayashi (Japan)

12:04–12:07 | Q&A

12:07–12:15 | OA124-04

Visuospatial Attention and Trip Avoidance Throughout Pregnancy

Robert Catena (United States)

12:15–12:18 | Q&A

12:18–12:26 | OA124-05

Whole-Body Balance Control Strategies During Obstacle Negotiation in Older Adults with Mild Cognitive Impairment

Shiuan-Huei Lu (Taiwan)

12:26–12:30 | Q&A

OA125 – Bone Biomechanics**11:30–12:30** | West 223-224**Track: Musculoskeletal Biomechanics: Tissues***Chair(s): Hanna Isaakson (Sweden), Taeyong Lee (South Korea)***11:30–11:42** | OA125-01**The Architecture of a Composite: A Multi-Scale View of Bone Mechanoadaptation***Mariana Kersh (United States)***11:42–11:45** | Q&A**11:45–11:53** | OA125-02**Organic Bone Matrix Predictors of Fracture Toughness in Type 2 and Non-diabetic Cortical Bone From Cadaveric, Femoral Midshafts***Emily Berestesky (United States)***11:53–11:56** | Q&A**11:56–12:04** | OA125-03**Adaptation of the Mouse Tibia to Fatigue Under Weekly Pathological in Vivo Axial Loading***Vincent Stadelmann (Switzerland)***12:04–12:07** | Q&A**12:07–12:15** | OA125-04**Micromechanical Properties of Human Femoral Neck Compact Bone – Influence of Age, Sex and Anatomical Site***Tatiana Kochetkova (Switzerland)***12:15–12:18** | Q&A**12:18–12:26** | OA125-05**Evaluating Regional Bone Loss in Patients With Brachial Plexus Injury***Karyne Rabey (Canada)***12:26–12:30** | Q&A

OA126 – Mechanoregulation of the ECM-Cell Crosstalk II**11:30–12:30** | West 217-219**Track: Cell Biomechanics: Mechanobiology***Chair(s): Morgan Huse (United States), Viola Vogel (Switzerland)***11:30–11:42** | OA126-01**Deciphering the Biomechanical Origin of Oxidative Stress: Mechanoradical Production in Tissues***Frauke Gräter (Germany)***11:42–11:45** | Q&A**11:45–11:53** | OA126-02**Chemomechanical Modeling of Time-Delayed Feedback in Cell–ECM Adhesion Regulation***Eiji Matsumoto (Japan)***11:53–11:56** | Q&A**11:56–12:04** | OA126-03**Type V Collagen Regulates Nascent Matrix Templating and Cell-Mediated Reorganization in Embryonic Meniscus***Neil Patel (United States)***12:04–12:07** | Q&A**12:07–12:15** | OA126-04**Critical Cell Spacing Governs Mechanical Communication via Strain-Stiffened Tension Bands in Fibrous ECM***Guy Genin (United States)***12:15–12:18** | Q&A**12:18–12:26** | OA126-05**Mechanotransduction Modeling of Stiffness-Sensitive Gene Regulation in Human Mesenchymal Stem Cells***Jean-Philippe Berteau (United States)***12:26–12:30** | Q&A

OA127 – Carotid and Aortic Devices**11:30–12:30** | West 221-222**Track: Cardiovascular/Cardiorespiratory Biomechanics: Materials and Devices***Chair(s): Alberto Aliseda (United States), Keefe Manning (United States)***11:30–11:42** | OA127-01**Thrombus Formation Simulation-based Approach for Identifying Intra-aneurysmal Occlusion in Flow Diverter Treated Intra-cranial Aneurysms***Masnaori Nakamura (Japan)***11:42–11:45** | Q&A**11:45–11:53** | OA127-02**Impact of Stent-Graft Compliance on Regional Aortic Remodeling***Anastasia Desyatova (United States)***11:53–11:56** | Q&A**11:56–12:04** | OA127-03**Large-Scale Virtual Population Modeling of the Internal Carotid Artery Derived from the Nagahama Cohort***Vedhino Bima Aryaputra Ahnaf (Japan)***12:04–12:07** | Q&A**12:07–12:15** | OA127-04**Abluminal Watertight Lining in Porcine Carotid Arteries: Biomechanical Role and Impact on Decellularization Efficiency***Jin-Jia Hu (Taiwan)***12:15–12:18** | Q&A**12:18–12:26** | OA127-05**Prediction of Stent-Graft Placement After the EVAR Procedure: A High-Fidelity Computational Model***Giulia De Campo (Italy)***12:26–12:30** | Q&A

OA128 – Biomechanics in Practice: Clinical Translation, Sport Safety, and Society

11:30–12:40 | West 220

Track: Biomechanics Education, Knowledge Translation and Outreach

Chair(s): Lisa MacFadden (United States), Kornelia Kulig (United States)

11:30–11:38 | OA128-01

Clinician Requirements of a Home-Based Gait-Retraining System With Real-Time Feedback and Remote Monitoring

Christy Oi-ying Chan (Netherlands)

11:38–11:41 | Q&A

11:41–11:49 | OA128-02

Traumatic Risk Assessment for Cerebral Exposure (TRACE): A Digital Platform for Real-Time Brain Health Monitoring in Sport

Eleni Koumantou (United Kingdom)

11:49–11:52 | Q&A

11:52–12:00 | OA128-03

Presenting Gait Analysis Results to Older Adults Undergoing Joint Arthroplasty: A Qualitative Study and Patient-Centred Report Development

Gabriel Lonuzzo (Canada)

12:00–12:03 | Q&A

12:03–12:11 | OA128-04

Who Really Knows Strength Training Biomechanics? An Experience and Occupation-Based Comparison

Tron Krosshaug (Norway)

12:11–12:14 | Q&A

12:14–12:22 | OA128-05

Evaluating COACH: Time in Live Tackling Drills and Associated Head Acceleration Events in Youth Football

Giovanny A. Romero A. (United States)

12:22–12:25 | Q&A

12:25–12:33 | OA128-06

The Misuse of Biomechanical Evidence in Shaken Baby Cases

Barbaram Pfeffer Billauer (United States)

12:33–12:40 | Q&A

SS2 – Academia to Industry**11:30–12:30** | West 208-209**11:30–11:40** | Welcome & Panel Introductions*Ian Campbell (United States), Kevin Adanty (Canada), Nikki Kelp (Canada), Toni Arndt (Sweden), Ember Krech (United States)***11:40–12:20** | Panel Discussion: Career Pathways & Transitions**12:20–12:30** | Audience Q&A and Open Discussion

LM3: Lunch Meetup 3

12:30–14:00

With more than 3,000 delegates attending the Congress, it can be difficult to find others who share your research interests or professional background. These informal Lunch Meetups are designed to help you connect with people working in similar fields, exchange ideas, and start new collaborations in a relaxed setting.

Simply grab your lunch from the Convention Centre Café on Level 1 and head to the designated meeting location for your interest group. There is no formal agenda or facilitator—just a casual opportunity to meet new people with shared interests.

Meet at the Following Locations:

Location 1 | Level 1 – Ocean Foyer (outside Rooms 121 & 122)

- **Biomechanics Education, Knowledge Translation and Outreach**
- **Injury Biomechanics**

Location 2 | Level 1 – Ballroom Foyer

- **Human Motion and Performance: Locomotion/Gait**
- **Rehabilitation Biomechanics and Human Factors: Rehabilitation**

Location 3 | Level 1 – Room 111

- **Cardiovascular/Cardiorespiratory Biomechanics: Materials and Devices**
- **Cardiovascular/Cardiorespiratory Biomechanics: Methods, Models and Applications**

Location 4 | Level 2 – Outside Room 205

- **Cell Biomechanics: Mechanobiology**
- **Clinical Biomechanics**

Location 5 | Level 2 – Outside Room 202

- **Musculoskeletal Biomechanics: Tissues**
- **Organ and Tissue Biomechanics**

Location 6 | Level 1 – Room 111

- **Human Motion and Performance: Balance, Posture and Control**
- **Human Motion and Performance: Sports**

Funding Without Borders: International Research Funding Opportunities

12:45–13:45 | West 202-204

12:45–12:50 | Welcome and Introductions

12:50–13:00 | NSF Presentation

13:00–13:10 | Horizon Europe Presentation

13:10–13:20 | MITACS Presentation

13:20–13:30 | Moderated Audience Q&A

13:30–13:45 | Networking and Informal Discussion

Job Market Poster Session (1/2) (Sign Up Required for Job Seekers)

12:45–13:45 | Outside West 215 - 216

The Job Market Poster Session connects delegates seeking academic or industry positions in biomechanics with institutions and organizations looking to recruit new talent. Job seekers will present posters showcasing their background, research, skills, and career interests, providing employers with an excellent opportunity to identify promising candidates, discuss career opportunities, and make valuable connections.

PL09 – Powered to Perform: A Holistic and Tech-Driven Approach to Keeping Athletes in Action

14:00–14:45 | West Ballroom A

Track: Clinical Biomechanics

Chair(s): Kim Bigelow (United States), Tung-Wu Lu (Taiwan)

14:00–14:30 | PL09-01

Powered to Perform: A Holistic and Tech-Driven Approach to Keeping Athletes in Action

Robin Queen (United States)

14:30–14:45 | Q&A

PL10 – Biomechanics in Orthopaedic Hallways: A Journey to Clinical Relevance

14:00–14:45 | West 211-214

Track: Clinical Biomechanics

Chair(s): Elizabeth Clarke (Australia), Kevin Deluzio (Canada)

14:00–14:30 | PL10-01

Biomechanics in Orthopaedic Hallways: A Journey to Clinical Relevance

Janie Wilson (Canada)

14:30–14:45 | Q&A

ES13 – Muscle Metabolism, Lower-Limb Joint Neuromechanics or Cost Function Objectives: Debating the Mechanisms Behind the Elevated Metabolic Cost of Walking in Aging

15:00–16:00 | West 215-216

15:00–15:08 | Introduction

Greg Sawicki (United States)

15:08–15:20 | 13-01

**Molecular and Cellular Perspective: “Check Engine Light Is On!” Exploring
Molecular, Cellular, and Tissue-Level Determinants of Gait Function in Aging**

Zach Graham (United States)

15:20–15:32 | 13-02

**Joint-Level Mechanics: “Transmission Trouble!” Examining Whether a Proximal-
to-Distal Shift in Lower-Limb Mechanical Power Generation Explains Higher
Walking Costs in Aging**

Katherine Boyer (United States)

15:32–15:44 | 13-03

**Ecological and Behavioral Perspective: “Put It in All-Wheel Drive!” Investigating
the Energetic Cost of Prioritizing Stability Over Economy Across the Lifespan**

Seungmoon Song (United States)

15:44–16:00 | Panel Discussion and Q&A

OA129 – Clinical Practice ACL 1**15:00–16:10** | West Ballroom A**Track: Clinical Biomechanics***Chair(s): Snehal Chockhandre (United States), Isabella Gomez Hjerthen (United States)***15:00–15:08** | OA129-01**Athletes With ACL Reconstruction Demonstrate Altered Movement Variability When Preparing to Respond to Perturbations: A Preliminary Analysis***Jamie Kronenberg (United States)***15:08–15:11** | Q&A**15:11–15:19** | OA129-02**Stretch-Shortening Cycle Mechanics and Leg Strength in Adolescent Male and Female Athletes Following ACL Injury***Landon Foley (Canada)***15:19–15:22** | Q&A**15:22–15:30** | OA129-03**Disentangling Movement Variability with Principal Component Analysis of Full-Waveform Motion Capture in Adolescent Athletes Post-ACL Reconstruction***Mona Behrouzian (Canada)***15:30–15:33** | Q&A**15:33–15:41** | OA129-04**In Vivo MR Elastography Reveals Cartilage Stiffness Changes Linked to Altered Gait Patterns Post-ACL Surgery***Corey Neu (United States)***15:41–15:44** | Q&A**15:44–15:52** | OA129-05**Three-Year Bone Changes Following Acute ACL Injury: Bone Density and Microarchitecture Analysis Using HR-pQCT***Callie Stirling (Canada)***15:52–15:55** | Q&A**15:55–16:03** | OA129-06**Analysis of Muscle Synergy Strategies During High-Risk Tasks in Patients Following ACL Reconstruction***Ze Gong (Hong Kong)***16:03–16:10** | Q&A

OA130 – Gait and Falls in Older Adults**15:00–16:10** | West 211-214**Track: Human Motion and Performance: Locomotion/Gait***Chair(s): Lizeth Sloot (United Kingdom), Yijian Yang (China)***15:00–15:08** | OA130-01**Energetic Consequences of a Distal-to-Proximal Shift in Positive Joint Work During Gait are Opposite for Mobility Impaired vs Non-Mobility Impaired Older Adults***Jacob Thomas (United States)***15:08–15:11** | Q&A**15:11–15:19** | OA130-02**Investigating the Potential to Reduce the Risk of Slips on Icy Surfaces With Gait Training: Preliminary Evidence of Gait Adaptation During Repeated Sessions of Walking on Ice***Mohammadali Shahiri (Canada)***15:19–15:22** | Q&A**15:22–15:30** | OA130-03**What is the Recovery Time After a Perturbation?***Romain Bechet (France)***15:30–15:33** | Q&A**15:33–15:41** | OA130-04**Timing of Trunk and Leg Reorientation During Turns Performed by Older Adults***Athena Efthymiou (United States)***15:41–15:44** | Q&A**15:44–15:52** | OA130-05**Gait Dynamics in Space and Time Reveal Distinct Impacts of Aging Across the Lifespan***Seung Kyeom Kim (United States)***15:52–15:55** | Q&A**15:55–16:03** | OA130-06**When Age Isn't Enough: Testing Recruitment Validity and Functional Decline in Biomechanical Gait Data***Jason Franz (United States)***16:03–16:10** | Q&A

OA131 – Cycling and Golf**15:00–16:10** | West 301**Track: Human Motion and Performance: Sports***Chair(s): Jill McNitt-Gray (United States)***15:00–15:08** | OA131-01**Shoe Fit and Downhill Cycling Performance***Eric Honert (United States)***15:08–15:11** | Q&A**15:11–15:19** | OA131-02**SplitCranks: A New Technological Device for Leg-Independent Control of Bilateral Power Output in Cycling***Marcos Kunzler (Brazil)***15:19–15:22** | Q&A**15:22–15:30** | OA131-03**A Comparison of Cycling Positional Differences Between Tandem Stokers and Pilots Before and After Wind-Tunnel Optimisation***Sean Husband (Ireland)***15:30–15:33** | Q&A**15:33–15:41** | OA131-04**Head Acceleration Event Burden in Competition Downhill Mountain Biking: Insights from the Whistler Crankworx Competition***Matthew G. Neill (Canada)***15:41–15:44** | Q&A**15:44–15:52** | OA131-05**Examining Muscular Fatigue Across Repeated Golf Swings and Its Relationship With Performance***Stephen Boulanger (Canada)***15:52–15:55** | Q&A**15:55–16:03** | OA131-06**Predictive Accuracy of Golf Clubhead Speed from Body-Derived Kinematic Variables***Bryndan Lindsey (China)***16:03–16:10** | Q&A

OA132 – Heart Valves 2**15:00–16:00** | West 302-305**Track: Cardiovascular/Cardiorespiratory Biomechanics: Methods, Models and Applications***Chair(s): Claire Conway (Ireland), Dominik Obrist (Switzerland)***15:00–15:12** | OA132-01**Integrating Clinical Imaging, Biomechanical Analysis, and Machine Learning for Carotid Plaque Rupture Prediction***Caitriona (Triona) Lally (Ireland)***15:12–15:15** | Q&A**15:15–15:23** | OA132-02**A Novel Reduced Order Model-Driven Paradigm for Real-Time Predictive Modeling of TAVR and Pre-Procedural Risk Assessment of Coronary Obstruction***Imran Shah (United States)***15:23–15:26** | Q&A**15:26–15:34** | OA132-03**Relationship Between Mechanical Dispersion and T-Wave Inversion in Arrhythmic Mitral Valve Prolapse***Reza Avazmohammadi (United States)***15:34–15:37** | Q&A**15:37–15:45** | OA132-04**An In-Silico Workflow to Virtually Perform Redo-TAVI Using a Balloon-Expandable Device to Assess the Risk of Vascular Injury When Varying Balloon Expansion***Sheikh Umara Zoni (United Kingdom)***15:45–15:48** | Q&A**15:48–15:56** | OA132-05**Virtual Transcatheter Repair of Atrioventricular Valve Regurgitation Using an Open-Source Finite Element Simulation Framework***Seda Aslan (United States)***15:56–16:00** | Q&A

OA133 – Concussion/Brain Injury 1**15:00–16:00** | West 202-204**Track: Injury Biomechanics***Chair(s): Yuan Feng (China), Lyndia Wu (Canada)***15:00–15:12** | OA133-01**Brain Tissue Deformation Thresholds for Blood Brain Barrier Disruption***Susan Margulies (United States)***15:12–15:15** | Q&A**15:15–15:23** | OA133-02**Traumatic Brain Injury – Comparing Lateral and Sagittal Impacts with the CHIMERA Platform***Alexander Burden (Canada)***15:23–15:26** | Q&A**15:26–15:34** | OA133-03**Factors Associated with Elevated Brain Strains in Youth American Football Players***Songbai Ji (United States)***15:34–15:37** | Q&A**15:37–15:45** | OA133-05**Elevated Moderate-Severe and Bleeding Brain Injury Risk in Older Adults Despite Reduced Kinematic Exposure***Claire Baker (United Kingdom)***15:45–16:00** | Q&A

OA134 – Liver Biomechanics**15:00–16:00** | West 205-207**Track: Organ and Tissue Biomechanics***Chair(s): Hiroshi Yamada (Japan)***15:00–15:12** | OA134-01**Mechanistic and Deep-Learning Models for Liver Treatment Planning: Virtual Human Twin for the Clinics***Pavlos Varsos (France)***15:12–15:15** | Q&A**15:15–15:23** | OA134-02**Experimental and Computational Models for Grey-White Interface Damage in Traumatic Brain Injury***Conal Sheridan (Ireland)***15:23–15:26** | Q&A**15:26–15:34** | OA134-03**Ex Vivo Biomechanical Evaluation of Self-Expandable Metallic Stent Migration After Hepaticogastrostomy Using a Porcine Pullout Test Across the Liver Parenchyma and Gastric Wall***Hiroshi Yamada (Japan)***15:34–15:37** | Q&A**15:37–15:45** | OA134-04**Lung Parenchyma Characterization Following Ventilator-Induced Lung Injury: Biaxial Tensile Experiments and Inverse Finite Element Constitutive Modeling***Matthew Shankel (United States)***15:45–15:48** | Q&A**15:48–15:56** | OA134-05**Effects of Brain Tissue Preparation on Regional Biomechanics in Tauopathy Mouse Model***Mohammad Tabatabaei (United States)***15:56–16:00** | Q&A

OA135 – Imaging Advancements for Joint Motion**15:00–16:00** | West 109**Track: Musculoskeletal Biomechanics: Joints and Motion***Chair(s): Allison Clouthier (Canada), Josh Roth (United States)***15:00–15:12** | OA135-01**Novel Approaches for Understanding Dynamic Joint Functionality***William R. Taylor (Switzerland)***15:12–15:15** | Q&A**15:15–15:23** | OA135-02**Bilateral Dynamic CT for Scapholunate Instability: Toward Personalized, Protocol-Standardized Kinematic Diagnosis***Maranda Haenen (Netherlands)***15:23–15:26** | Q&A**15:26–15:34** | OA135-03**Quantifying In-Vivo Lumbar Spine Kinematics Using Biplanar Videoradiography and MRI.***David Williams (United Kingdom)***15:34–15:37** | Q&A**15:37–15:45** | OA135-04**Comparison of Hip Contact Forces Across Skin Marker and Dual Fluoroscopy Informed Musculoskeletal Models in Femoroacetabular Impingement Syndrome and Asymptomatic Controls***Brooklyn Vargas (United States)***15:45–15:48** | Q&A**15:48–15:56** | OA135-05**Effect of Embedding Coupling-Curves-Based Knee Models Within Inverse Kinematics Compared to Bi-Plane Fluoroscopy-Driven Kinematics***Mehran Hatamzadeh (France)***15:56–16:00** | Q&A

OA136 – Simulating Human Balance: Advances in Musculoskeletal and Neuromechanical Modeling

15:00–16:10 | West 110

Track: Human Motion and Performance: Balance, Posture and Control

Chair(s): Geoffrey Ng (Canada), Lennart Scheys (Belgium)

15:00–15:08 | OA136-01

Biophysical Simulations Reveal the Impact of Tendon Stiffness on the Interplay Between Intrinsic Mechanics and Sensorimotor Feedback in Unsteady Movements

Hansol X. Ryu (United States)

15:08–15:11 | Q&A

15:11–15:19 | OA136-02

Predictive Simulation of Sensorimotor Alterations to Characterize Postural Control in Parkinson's Disease

Julian Shanbhag (Germany)

15:19–15:22 | Q&A

15:22–15:30 | OA136-03

Emergence of Ankle-to-Hip Strategy Transition in Upright Posture via Reinforcement Learning with Biomechanical and Physiological Constraints

Seongwoong Hong (Korea, Republic of)

15:30–15:33 | Q&A

15:33–15:41 | OA136-04

Impact of Age-Related Changes in Muscle Function on Postural Control Strategies in Sit-to-Stand: A Musculoskeletal Simulation with Multi-Objective Optimization

Shoma Kudo (Japan)

15:41–15:44 | Q&A

15:44–15:52 | OA136-05

Direction-Specific Muscle Force Profile During Y-Balance Test

Dongho Ha (Korea, Republic of)

15:52–15:55 | Q&A

15:55–16:03 | OA136-06

Predictive Neuromuscular Simulations Indicate That Spinal Control Does Not Solely Explain Steady-State Human Walking

Mark Price (United States)

16:03–16:10 | Q&A

OA137 – Muscle Biomechanics**15:00–16:00** | West 223-224**Track: Musculoskeletal Biomechanics: Tissues***Chair(s): Adam Kositsky (Finland), Syn Schmitt (Germany)***15:00–15:12** | OA137-01**Multi-Scale Experimental Approaches of Muscle Function***Walter Herzog (Canada)***15:12–15:15** | Q&A**15:15–15:23** | OA137-02**Dose- and Time-Dependent Effects of Intramuscular Botulinum Neurotoxin on Passive Mechanical Properties of Skeletal Muscle***Albino G. Schifino (United States)***15:23–15:26** | Q&A**15:26–15:34** | OA137-03**Explaining Sarcomere Length Non-Uniformities in Single Myofibrils***Chris Tiessen (Canada)***15:34–15:37** | Q&A**15:37–15:45** | OA137-04**Increasing Intramuscular Fluid Volume Increases Passive Tension in Mammalian Skeletal Muscle***Samantha Falcone (United States)***15:45–15:48** | Q&A**15:48–15:56** | OA137-05**Impairments in Paraspinal Muscle Specific Force Production Following an Experimental Intervertebral Disc Injury in a Rodent Model***Josh Briar (Canada)***15:56–16:00** | Q&A

OA138 – Emerging Tools to Probe Mechanobiological Processes**15:00–16:10** | West 217-219**Track: Cell Biomechanics: Mechanobiology***Chair(s): Shiva Shivashankar (Switzerland), Peter Wang (United States)***15:15–15:23** | OA138-01**Curvature Regulate Cell Migration and Nuclear Dynamics***Chia-Chun Yeh (Taiwan)***15:23–15:26** | Q&A**15:26–15:34** | OA138-02**Developing a Novel Genetically Encoded Molecular Tension Sensor***Takumi Saito (Japan)***15:34–15:37** | Q&A**15:37–15:45** | OA138-03**Tomographic Shearmetry of Dynamic Flows at Cell Surfaces Using Nanoprobes***Arianna Giannetti (France)***15:45–15:48** | Q&A**15:48–15:56** | OA138-04**Magnetic Stiffening Cryogels With Hierarchical Alignment for Mechano-Modulation of Mesenchymal Stromal Cells***Wen Chen (Switzerland)***15:56–15:59** | Q&A**15:59–16:07** | OA138-05**The Role of Focal Adhesion Kinase Signaling in Response to Dynamic Cyclic Loading Changes with Hierarchical Collagen Fiber Formation in Engineered Ligaments***Jennifer Puetzer (United States)***16:07–16:10** | Q&A

OA139 – Arterial Devices**15:00–16:10** | West 221-222**Track: Cardiovascular/Cardiorespiratory Biomechanics: Materials and Devices***Chair(s): Kerem Pekkan (United States), Ryo Torii (United Kingdom)***15:00–15:12** | OA139-01**State-of-the-Art Innovations in Coronary Stents: Insights from Computational and Benchtop Evaluation***Susann Beier (Australia)***15:12–15:15** | Q&A**15:15–15:27** | OA139-02**Cell Dynamics Driven by Substrate Elasticity-Topography Interplay for Microfluidic Applications***Hiromi Miyoshi (Japan)***15:27–15:30** | Q&A**15:30–15:38** | OA139-03**Tunable Soft Robotic Pulmonary Artery Banding Device for the Management of Congenital Heart Disease***Amit Sharir (United States)***15:38–15:41** | Q&A**15:41–15:49** | OA139-04**Understanding Extracorporeal Membrane Oxygenation and Impella Synergy Through a Patient-Specific Hybrid Mock Circulatory Loop***Gasparotti Emanuele (Italy)***15:49–15:52** | Q&A**15:52–16:00** | OA139-05**A Data-Informed Growth and Remodeling Framework for Vein Graft Adaptation Following Coronary Artery Bypass Graft Surgery***Lazaros Papamanolis (United States)***16:00–16:10** | Q&A

OA140 – Pedagogy in Motion: Innovations in Biomechanics Education and Training

15:00–16:00 | West 220

Track: Biomechanics Education, Knowledge Translation and Outreach

Chair(s): Allison Altman-singles (United States)

15:00–15:08 | OA140-01

Using a Values Self-Assessment to Encourage Engagement in an Undergraduate Exercise Science Biomechanics Class

Ashlyn Jendro (United States)

15:08–15:11 | Q&A

15:11–15:19 | OA140-02

Faculty Engaged Graduate Recruitment Effort from Primarily Undergraduate Institutions

Liang Zhu (United States)

15:19–15:22 | Q&A

15:22–15:30 | OA140-03

The use of Biomechanics for a Course-Based Research Experience in a Large Class

Andy Karduna (United States)

15:30–15:33 | Q&A

15:33–15:41 | OA140-04

Student Travel Awards Paired With Professional Development Programming Led to Broad Benefits for Early Career Travel Grant Recipients at a National Biomechanics Conference

Kurt E. Beschorner (United States)

15:41–16:00 | Q&A

SS3 – Celebrating Diversity and Inclusion in Biomechanics: Global Perspectives from Student Members

15:00–16:00 | West 208-209

15:00–15:05 Welcome & Session Overview

Esther Reina Romo (Spain), Lori Ann Vallis (Canada), Leah Williams (Canada), Julie Choisine (New Zealand), Rahmat Safdar (United States)

15:05–15:40 | Global Perspectives on DEI

15:40–15:50 | Lessons, Ideas & Future Directions

15:50–16:00 | Audience Discussion & Networking

Coffee Break and Poster Viewing Day 3

16:00–17:00 | Exhibit Hall – West Ballroom BCD

ASME Medal Session 1: Lissner, Nerem and Grood Medals

17:00–18:00 | West 208-209

17:00–17:20 | Lissner Medal Lecture

A Mitral Valve Digital Twin Approach for Surgical Planning

Michael S. Sacks (United States)

17:20–17:40 | Nerem Medal Lecture

Flying by the Seat of Our Pants

Kristen Billiar (United States)

17:40–18:00 | Grood Medal Lecture

What Do You Get When You Pair a Bioengineer Trained in Sports Medicine With a Urogynecologist? A Crash Course in Feeling Stupid.

Steven Abramowitch, Pamela Moalli – Translational Research Laboratories in Urogynecology (TRLU) (United States)

ES14 – Biomechanics in the Orthopaedic Clinic: An Interactive Panel on Opportunities and Barriers

17:00–18:00 | West 215-216

17:00–18:00 | Interactive Panel

Laura Diamond (Australia), Dylan Kobsar (Canada), Monica Maly (Canada), Ariana Ortigas-Vasquez (Switzerland), Matthew Teeter (Canada)

OA141 – Clinical Practice – ACL 2**17:00–18:10** | West Ballroom A**Track: Clinical Biomechanics***Chair(s): Jason Halloran (United States), Callie Stirling (Canada)***17:00–17:08** | OA141-01**Video-Derived Asymmetry Enhances Prediction of Long-term Patient-reported Outcomes after ACL Reconstruction***Eni Halilaj (United States)***17:08–17:11** | Q&A**17:11–17:19** | OA141-02**The Effect of Meniscal Damage and Demographic Factors on Gait Biomechanics After ACL Injury***Harry Battersby (Canada)***17:19–17:22** | Q&A**17:22–17:30** | OA141-03**Female Athletes Exhibit Higher ACL Force than Males in Response to Valgus Moments Due to Increased Coupled Internal Tibial Rotation: A Sex-Specific Computational Modeling Study in 168 Young Athletes***Isabella Gomez Hjerthen (United States)***17:30–17:33** | Q&A**17:33–17:41** | OA141-04**Longitudinal Evaluation of Sex Differences in Knee Loading During Gait After ACL Reconstruction***Alexa Johnson (United States)***17:41–17:44** | Q&A**17:44–17:52** | OA141-05**Knee Asymmetry Three Months After ACL Reconstruction Is Indicative of Poor Function at Nine Months***Evy Meinders (United States)***17:52–17:55** | Q&A**17:55–18:03** | OA141-06**Associations Between Medial Tibiofemoral Contact Forces in Walking and Femoral Cartilage Health Over the First Year Following Anterior Cruciate Ligament Reconstruction***Justin Dennis (United States)***18:03–18:10** | Q&A

OA142 – Running**17:00–18:10** | West 211-214**Track: Human Motion and Performance: Locomotion/Gait***Chair(s): Tron Krosshaug (Norway), Alison Sheets-Singer (United States)***17:00–17:08** | OA142-01**Knee Cartilage Thickness and Knee Mechanics in Walking Not Associated with Sport History in Young Runners and Swimmers***Zoey Kearns (United States)***17:08–17:11** | Q&A**17:11–17:19** | OA142-02**Stroller Running Slightly Attenuates the Stride Length–Speed Relationship***Abby Miller (United States)***17:19–17:22** | Q&A**17:22–17:30** | OA142-03**Climbing to Lower Loads: Ground Reaction Force Adaptations in Incline Running***Karen Mickle (Australia)***17:30–17:33** | Q&A**17:33–17:41** | OA142-04**The Effect of Foot Progression Angle on Tibiofemoral Joint Contact Forces in the Medial and Lateral Compartments During Running***Amber S Van Nes (Canada)***17:41–17:44** | Q&A**17:44–17:52** | OA142-05**Classification of Running Movement Patterns in Service Members with Knee Pain***Adam Bunn (United States)***17:52–17:55** | Q&A**17:55–18:03** | OA142-06**Tibial Bone Load, Strength, and Dynamic Balance in Initial Return to Run Phase Following Tibial Bone Stress Injury***Megan Peach (United States)***18:03–18:10** | Q&A

OA143 – Breast Health in Athletes**17:00–18:20** | West 301**Track: Human Motion and Performance: Sports***Chair(s): Jacqueline Alderson (United States), Katherine Boyer (United States)***17:00–17:08** | OA143-01**Menstrual Cycle Effects on Breast Acceleration During Running***Ine Mylle (Canada)***17:08–17:11** | Q&A**17:11–17:19** | OA143-02**Quantifying the Temporal Delay between Breast and Torso Acceleration Data Obtained From Inertial Measurement Units***Tarini Rajasekar (Canada)***17:19–17:22** | Q&A**17:22–17:30** | OA143-03**Frequency and Coherence Analysis of IMU-Derived Breast Motion Across Increasing Running Speeds***Kaylee White (Canada)***17:30–17:33** | Q&A**17:33–17:41** | OA143-04**An Exploratory Analysis of Cut-Off Frequency Methodologies for Breast Motion IMU Data During Multiplanar and Uniplanar Movements***Jessica Yeoman (Canada)***17:41–17:44** | Q&A**17:44–17:52** | OA143-05**Sports Bra Support Modulates Breast-Torso Coupling and Soft-Tissue Oscillation During Dynamic Activities***Meng Pei (Canada)***17:52–17:55** | Q&A**17:55–18:03** | OA143-06**The Effects of Breast Volume Reduction Surgery on Lower-Limb Kinematics in Running***Charles-Edouard Jarry (Canada)***18:03–18:06** | Q&A**18:06–18:14** | OA143-07**Does Mass Location and Distribution on the Torso Affect Running Economy, Running Biomechanics and Exercise-Induced Breast Pain Among Women?***Celeste Coltman (Australia)***18:14–18:20** | Q&A

OA144 – Image Based Cardiovascular Biomechanics**17:00–18:00** | West 302-305**Track: Cardiovascular/Cardiorespiratory Biomechanics: Methods, Models and Applications***Chair(s): Abdul Barakat (France), Matthew Shankel (United States)***17:00–17:12** | OA144-01**Ultrasound-Based Patient-Specific Modeling for Aortic Aneurysm Risk Assessment: From 4D Imaging to Fluid-Structure Interaction***Richard Lopata (Netherlands)***17:12–17:15** | Q&A**17:15–17:23** | OA144-02**Sub-Voxel Vascular Segmentation from Coarse Resolution Medical Imaging***Numi Sveinsson Cepero (United States)***17:23–17:26** | Q&A**17:26–17:34** | OA144-03**Distinctive Coronary Tree-Level Haemodynamic Features in Spontaneous Coronary Artery Dissection: A Case–Control Imaging Study***Susann Beier (Australia)***17:34–17:37** | Q&A**17:37–17:45** | OA144-04**Analysis of ATAA Microstructure With Clinical 3T MRI Scanner via Diffusion Tensor Imaging***Emanuele Vignali (Italy)***17:45–17:48** | Q&A**17:48–17:56** | OA144-05**Aortic Microstructure and Suture Pullout Variability***Gabrielle X. Lohrenz (United States)***17:56–18:00** | Q&A

OA145 – Concussion/Brain Injury II**17:00–18:10** | West 202-204**Track: Injury Biomechanics***Chair(s): Claire Jones (Australia)***17:00–17:08** | OA145-01**Where Do Single Impacts Deform the Brain Most Across Sports? a Voxel-Wise Finite-Element Study***Emily Yik Kwan Chan (United Kingdom)***17:08–17:11** | Q&A**17:11–17:19** | OA145-02**Age-Dependent Intracranial Volume Redistribution and Its Biomechanical Implications for Traumatic Brain Injury: A Multi-Scale Analysis***Claudia Sbriglio (Poland)***17:19–17:22** | Q&A**17:22–17:30** | OA145-03**The Peculiar Property of Pia Mater on the Prediction of Acute Subdural Hematoma***Chengbin Li (Sweden)***17:30–17:33** | Q&A**17:33–17:41** | OA145-04**In Vivo Brain Deformation Response to Rapid Head Rotation in a Large Animal Model***Charlie Magarey (Australia)***17:41–17:44** | Q&A**17:44–17:52** | OA145-05**The Influence of Angular Acceleration Versus Deceleration Ratio on Regional Brain Strain Response***Tyler F. Rooks (United States)***17:52–17:55** | Q&A**17:55–18:03** | OA145-06**MRI to Head Model: A Reproducible Pipeline for Study-Specific Finite Element Head Model Generation From MRI for TBI Studies***Christian John Saludar (New Zealand)***18:03–18:10** | Q&A

OA146 – Vascular Mechanics**17:00–18:00** | West 205-207**Track: Cardiovascular/Cardiorespiratory Biomechanics: Methods, Models and Applications***Chair(s): Beatrice Bisighini (France), Ana Estrada (United States)***17:00–17:12** | OA146-04**Biomechanical Mechanisms of Aortic Dissection Propagation: Integrating Intramural Delamination Experiments and Multiscale Imaging***Cristina Cavinato, LMGC, Univ. Montpellier, CNRS, France***17:12–17:15** | Q&A**17:15–17:23** | OA146-01**Polyphenol-Eluting Sutures to Improve Vascular Mechanostability***Gabrielle X. Lohrenz (United States)***17:23–17:26** | Q&A**17:26–17:34** | OA146-02**Gestational Hypobaric Hypoxia Induces Long-Term Biomechanical Remodeling of the Thoracic Aorta***Álvaro Navarrete (Chile)***17:34–17:37** | Q&A**17:37–17:45** | OA146-03**Indentation Size Effects Dominate Aortic Tissue Nanoindentation and its Dynamic Mechanical Analysis***Michele Conti (Italy)***17:45–18:00** | Q&A

OA147 – Running Biomechanics and Tissue Loading**17:00–18:00** | West 109**Track: Musculoskeletal Biomechanics: Joints and Motion***Chair(s): Pouya Amiri (Canada), Ben MacDonald (Canada)***17:00–17:12** | OA147-01**Articular Hip Loads and Muscle Forces in People with Hip Pathology***Laura Diamond (Australia)***17:12–17:15** | Q&A**17:15–17:23** | OA147-02**Hamstring Muscle Strain During Accelerated Sprints Following Repeated Sprints***Leon Lobe (Austria)***17:23–17:26** | Q&A**17:26–17:34** | OA147-03**Influence of a Demanding 10 Km Run on Multi-Segment Foot Joint Kinetics and Kinematics***Luke Kelly (Australia)***17:34–17:37** | Q&A**17:37–17:45** | OA147-04**Sex Difference in Peak Hip Adduction and Its Association With Symptoms and Function in Runners With Heightened Osteoarthritis Risk: 2-Year Follow-Up Analysis of the TRAIL Prospective Cohort Study***Brody McCarthy (Australia)***17:45–17:48** | Q&A**17:48–17:56** | OA147-05**Knee Cartilage Structure Before and After Running in Habitual Masters Runners With and Without Knee Osteoarthritis***Jesse Charlton (Canada)***17:56–18:00** | Q&A

OA148 – Technological Advances for Monitoring and Enhancing Balance: from Wearables and AI to Virtual Reality

17:00–18:10 | West 110

Track: Human Motion and Performance: Balance, Posture and Control

Chair(s): Pawel Kudzia (Canada), Michael Rosenberg (United States)

17:00–17:08 | OA148-01

Effects of Unisensory and Multisensory Augmentation on Standing Balance in Chronic Stroke Survivors

Isabelle Museck (United States)

17:08–17:11 | Q&A

17:11–17:19 | OA148-02

Discordance Between Video-Based Measures of Balance Ability and Perception Is Associated With Fall History in People With Diverse Balance Abilities

Hannah Heigold (United States)

17:19–17:22 | Q&A

17:22–17:30 | OA148-03

User-Independent, Deep-Learning Estimates of Center of Mass Kinematics to Enable Autonomous Exoskeleton Control for Balance Augmentation

Kristen Jakubowski (United States)

17:30–17:33 | Q&A

17:33–17:41 | OA148-04

Human-in-the-Loop Optimization of Postural States Between Sensory Conditions

Amin M Nasrabadi (Canada)

17:41–17:44 | Q&A

17:44–17:52 | OA148-05

A Privacy-Preserving, Device-Free Fall Detection System via Wi-Fi Channel State Information

Nathaniel Im (United States)

17:52–17:55 | Q&A

17:55–18:03 | OA148-06

Balance Assessment via Markerless Motion Capture: Evaluating Center of Mass and Center of Pressure Estimations Against Gold-Standard Measurements

Milad Nazarahari (Canada)

18:03–18:10 | Q&A

OA149 – Articular Cartilage Biomechanics**17:00–18:00** | West 223-224**Track: Musculoskeletal Biomechanics: Tissues***Chair(s): Dawn Elliott (United States), Walter Herzog (Canada)***17:00–17:12** | OA149-05**Cartilage Wear Under Cyclical Loading is Significantly Reduced with Addition of Divalent Cations***Gerard A. Ateshian (United States)***17:12–17:15** | Q&A**17:15–17:23** | OA149-01**Osteoarthritis Progression Alters Collagen Network Reorganization in Cartilage upon Mechanical Loading***Yixuan Zhang (Belgium)***17:23–17:26** | Q&A**17:26–17:34** | OA149-02**Knee Joint Loading Differences Affect the Mechanoregulation of Cartilage Gene Expression and Distinguish Healthy, Non-Progressor, and Progressor Knee OA Subjects***Ilse Jonkers (Belgium)***17:34–17:37** | Q&A**17:37–17:45** | OA149-03**Combining Raman Spectroscopy and Nanoindentation to Correlate Changes in both Mechanical Properties and Molecular Structure during Osteoarthritis Progression***Sarah Davis (United Kingdom)***17:45–17:48** | Q&A**17:48–17:56** | OA149-04**Diet-Induced Obesity Contributes to Biochemical Changes in Cartilage in Older Rats Without Decline in Mechanical Properties***Rasmus K. Hiltunen (Finland)***17:56–18:00** | Q&A

OA150 – Pathophysiology of Occupational Upper Extremity Disorders

17:00–18:00 | West 217-219

Track: Rehabilitation Biomechanics and Human Factors: Occupational Biomechanics

Chair(s): Julie Cote (Canada), Numaira Obaid (Canada)

17:00–17:12 | OA150-01

Exoskeletons and Robotic Assessments: Evaluating Hand and Wrist Function in Occupational Tasks

Michael Holmes (Canada)

17:12–17:15 | Q&A

17:15–17:23 | OA150-02

Validating a Force Measuring Glove for Use in Distal Upper Limb Ergonomic Assessment Tools

Tyler Brown (Canada)

17:23–17:26 | Q&A

17:26–17:34 | OA150-03

Multimodal Physiological Monitoring of E-sports Gaming

Yookyeong Sa (Korea, Republic of)

17:34–17:37 | Q&A

17:37–17:45 | OA150-04

Identifying and Quantifying Manual Wheelchair Propulsion Patterns in the Wild

Kathylee Pinnock Branford (United States)

17:45–17:48 | Q&A

17:48–17:56 | OA150-06

The Effects of Mental Fatigue on Movement and Muscle Activity During Cyclic Pushing

Molly Malette (Canada)

17:56–18:00 | Q&A

OA151 – Tendon and Ligament Repair

17:00–18:00 | West 221-222

Track: Orthopaedic Biomechanics: Trauma and Repair

Chair(s): Matthew Fisher (United States), Karen Troy (United States)

17:00–17:12 | OA151-01

Achilles Tendon Repair – The Effect of Unloading on Structure-Function Relationships

Hanna Isaksson (Sweden)

17:12–17:15 | Q&A

17:15–17:23 | OA151-02

MRL/MpJ Inspired Therapeutic Protein Panel Restores Material Properties in Fully Torn Rat Supraspinatus Tendon

Ellen Garner (United States)

17:23–17:26 | Q&A

17:26–17:34 | OA151-03

Biomechanical and In-Vitro Testing of Braided, Long-Term Biodegradable Scaffolds for Anterior Cruciate Ligament Tissue Engineering

Caroline Emonts (Germany)

17:34–17:37 | Q&A

17:37–17:45 | OA151-04

Assessing Efficacy of Systemic Tacrolimus Immunosuppression to Improve Tendon Reconstruction: A Pilot Study

Trent Hardwick (United States)

17:45–17:48 | Q&A

17:48–17:56 | OA151-05

Implant Cross-Sectional Profile Affects Tendon-Implant Interactions Over Initial Cycles of Tendon Loading

Michael Pavol (United States)

17:56–18:00 | Q&A

OA152 – Modeling Cellular Biological Systems**17:00–18:00** | West 220**Track: Cell Biomechanics: Methods and Models***Chair(s): Takuji Ishikawa (Japan), Vasileios Vavourakis (Cyprus)***17:00–17:12** | OA152-01**Modeling the Role of the Mechanical Microenvironment in the Spatio-Temporal Organization of Tumor Organoids and Their Interactions with Immune Cells***José Manuel García-Aznar (Spain)***17:12–17:15** | Q&A**17:15–17:23** | OA152-02**Intracellular Basal Coupling Modulates Coordination in Computational Models of Autonomously Beating Cilia***Alexis Rivera (United States)***17:23–17:26** | Q&A**17:26–17:34** | OA152-03**A Comprehensive Thermodynamic Eshelby-informed Model for Sarcomere Growth***Thomas Hayes (Ireland)***17:34–17:37** | Q&A**17:37–17:45** | OA152-04**A Thermodynamic Framework to Predict Coupled Cross-Bridge Remodeling and Deformation Dynamics***Ryan Coleman (Ireland)***17:45–17:48** | Q&A**17:48–17:56** | OA152-05**A Thermodynamically Consistent Biophysical Model for Stress-Dependent Cell Growth and Division***Matteo Simeone (Ireland)***17:56–18:00** | Q&A

Congress Night at the Aquarium (Ticketed Event) – SOLD OUT

20:00–23:00 | Vancouver Aquarium, 845 Avison Way, Vancouver, BC V6G 3E2

For those interested in walking to the Aquarium with fellow delegates, an informal group will depart from the Vancouver Convention Centre, Burrard Street Entrance (under the Globe) at 19:30. Participation is entirely optional, and attendees are welcome to make their own travel arrangements to the Aquarium.

Featuring WCB’s Got Talent Performances:

20:15	Ethan Kung, USA	Solo Vocal with Acoustic Guitar
20:45	Kathlyn Downer, USA	Juggling Performance
21:15	Victoria Spartacus, France	Vocal
21:45	Victor Huayamave, USA	Electric Guitar

Program

WEDNESDAY, JULY 15

Fun Run

07:00–07:40 | Meeting Point: Vancouver Convention Centre, West Building, Burrard Street Entrance, Under the Globe

PL11 – Beyond the Lab: Harnessing Wearables for Clinical and Community-based Functional Outcomes

08:30–09:15 | West Ballroom A

Track: Rehabilitation Biomechanics and Human Factors: Rehabilitation

Chair(s): Jason Franz (United States), Peter Lee (Australia)

08:30–09:00 | PL11-01

Beyond the Lab: Harnessing Wearables for Clinical and Community-based Functional Outcomes

Arun Jayaraman (United States)

09:00–09:15 | Q&A

PL12 – Mechanics and Dynamics in the Aging and Rejuvenation of Mammalian Oocytes

08:30–09:15 | West 211-214

Track: Cell Biomechanics: Mechanobiology

Chair(s): Walter Herzog (Canada), Toshiro Ohashi (Japan)

08:30–09:00 | PL12-01

Mechanics and Dynamics in the Aging and Rejuvenation of Mammalian Oocytes

Rong Li (Singapore)

09:00–09:15 | Q&A

ASME Medal Session 2: Fung, Woo, and Mow Medals**09:30–10:30** | West 208-209**09:30–09:50** | Fung Medal Lecture**Toward AI-Assisted Digital Twins for Cardiovascular Flow Modeling***Amirhossein Arzani (United States)***09:50–10:10** | Woo Medal Lecture**The Importance of Cerebrospinal Fluid Dynamics in Chiari Type I Malformation***Francis Loth (United States)***10:10–10:30** | Mow Medal Lecture**Mechanometabolism in Cardiovascular Disease***Alisa Morss Clyne (United States)*

ES15 – Hip Biomechanics Across the Lifespan: From Infancy to Adulthood

09:30–10:30 | West 215-216

09:30–09:32 | Introductory Remarks: Welcome, Required Announcements, and Session Overview

Victor Huayamave, Michael Harris (United States)

Clinical Framing: Introducing the Lifespan Narrative of the Hip, From Adult Dysplasia and Arthritis Through Joint Preservation and Replacement

Pablo Castaneda (United States)

09:32–09:38 | Skeletally Mature Hip: Shape Variation and Population-Level Biomechanics

Andrew Anderson (United States)

Transition: What Is Hip Dysplasia?

Pablo Castaneda (United States)

09:38–09:44 | Adults: Trajectories Following Hip Preservation Surgeries

Michael Harris (United States)

Transition: Adolescent Dysplastic Hip

Pablo Castaneda (United States)

09:44–09:50 | Adolescents: Influence of Loading on Development

Cara Lewis (United States)

Transition: Pediatric Postoperative Hip

Pablo Castaneda (United States)

09:50–09:56 | Infants and Children: Modeling Approaches in Early Development

Victor Huayamave (United States)

Transition: Infant Hip With Dysplasia

Pablo Castaneda (United States)

09:56–10:02 | Infants: Challenges and Opportunities in Early-Life Biomechanics

Erin Mannen (United States)

10:02–10:22 | Panel Discussion and Audience Interaction

10:22–10:29 | Call to Action and Future Directions

10:29–10:30 | Closing Remarks: Summary and Session Close

Michael Harris (United States), Victor Huayamave (United States)

OA153 – Emerging Areas of Clinical Biomechanics**09:30–10:40** | West Ballroom A**Track: Clinical Biomechanics***Chair(s): Jazmen Cruz (United States), David Lipps (United States)***09:30–09:38** | OA153-01**Biokinetic Risk Factors in Young TKA Patients: A Gait Analysis of 88 Knees With Implications for Sports Participation and Implant Survivorship***Carolline P. Nunes (United States)***09:38–09:41** | Q&A**09:41–09:49** | OA153-02**3D Modelling Approach to Optimize Mini-Plate Configurations for High Predicted Bone Union Propensity for Mandibular Reconstruction Surgery***Cassidy Tizzard (Canada)***09:49–09:52** | Q&A**09:52–10:00** | OA153-03**Biomimetic Meninges-On-a-Chip to Model Cerebrospinal Fluid Drainage and Subarachnoid Space Solute Exchange at the Temporal Bone Ear–Brain Interface in Hearing Loss and Dementia***Simone Perottoni (Italy)***10:00–10:03** | Q&A**10:03–10:11** | OA153-04**Lower Extremity Joint Loading During Squatting Differs Across Hemophilic Arthropathy Severity in Persons with Hemophilia***Danielle Siegel (United States)***10:11–10:14** | Q&A**10:14–10:22** | OA153-05**Sweep-Frequency Impedance (SFI) for Middle-Ear Pathology Classification With Machine Learning***Michio Murakoshi (Japan)***10:22–10:25** | Q&A**10:25–10:33** | OA153-06**A 3D Goal Equivalent Manifold Approach to Detecting Season-Long Post-Concussion Motor Deficits in Female Soccer Players***Xiong Zhao (Canada)***10:33–10:40** | Q&A

OA154 – Low-Gravity Gait**09:30–10:30** | West 211-214**Track: Human Motion and Performance: Locomotion/Gait***Chair(s): Jared Fletcher (Canada), Gaspare Pavei (Italy)***09:30–09:38** | OA154-01**Proprioception Enables Gravity-Dependent Reorganisation of Gait***Alessandro Santuz (Germany)***09:38–09:41** | Q&A**09:41–09:49** | OA154-02**Muscle Activation During Hypogravity Running***Lina Yu (Canada)***09:49–09:52** | Q&A**09:52–10:00** | OA154-03**Do Astronauts Need to Run Faster? Achilles Tendon Loading Across Running Speeds and Simulated Reduced Gravity***Hannah G. Yesuf (Canada)***10:00–10:03** | Q&A**10:03–10:11** | OA154-04**Why Do Astronauts Bounce on the Moon? Mechanical Work of Walking, Running, and Skipping in Simulated Low Gravity.***Francesco Luciano (Italy)***10:11–10:14** | Q&A**10:14–10:22** | OA154-05**Cost of Transport in Reduced Gravity: Optimizing Astronaut Exercise Prescriptions***Dawson Sheehan (Canada)***10:22–10:30** | Q&A

OA155 – Team and Water Sports**09:30–10:40** | West 301**Track: Human Motion and Performance: Sports***Chair(s): Andrew Karduna (United States), Gillian Weir (United States)***09:30–09:38** | OA155-01**IMU-Based Measures of Trunk Movement Variability Are Not Sensitive to Fatigue in Female, Varsity Rowers During a 2000m Rowing Time-Trial***Julie N. Côté (Canada)***09:38–09:41** | Q&A**09:41–09:49** | OA155-02**Assessing Symmetry in Sweep Rowers: Comparison of Muscle Activation in Port, Starboard, and Bisweptual Female Collegiate Rowers on the Ergometer***Madeleine Enns (United States)***09:49–09:52** | Q&A**09:52–10:00** | OA155-03**Assessing the Effect of Inter-Athlete Spatiotemporal Coordination on Pairs Rowing Performance Times***Ian Doctor (Canada)***10:00–10:03** | Q&A**10:03–10:11** | OA155-04**Recognition of Front-Crawl Stroke Phases Using an Inertial Measurement Unit and Deep Learning***Mathilde Montel (France)***10:11–10:14** | Q&A**10:14–10:22** | OA155-05**Quantifying Changes in Coordination Patterns in Adolescents with Cerebral Palsy Following a Learn to Row Program***Ali Hawkins (Canada)***10:22–10:25** | Q&A**10:25–10:33** | OA155-06**Effects of Pool Depth on Swimming Performance: Application to the 200-m Freestyle***Junsik Oh (Korea, Republic of)***10:33–10:40** | Q&A

OA156 – Image Based Cardiovascular Biomechanics**09:30–10:30** | West 302-305**Track: Cardiovascular/Cardiorespiratory Biomechanics: Methods, Models and Applications***Chair(s): Michele Conti (Italy), Jay Humphrey (United States)***09:30–09:38** | OA156-01**Regional Strain in Human Acute Respiratory Distress Syndrome: Mechanical Response of Focal and Non-Focal Phenotypes to Recruitment Maneuvers***César Santis (Chile)***09:38–09:41** | Q&A**09:41–09:49** | OA156-02**Exploring V/Q Distribution in Children With MRI-Informed Personalised Computational Lung Models***Ho-Fung Chan (New Zealand)***09:49–09:52** | Q&A**09:52–10:00** | OA156-03**Effects of Respiratory Heart Rate Variability on Cardiac Biomechanics: Experiment and Modelling Investigations***Chamal Kohombakadawala (New Zealand)***10:00–10:03** | Q&A**10:03–10:11** | OA156-04**Applying Adaptive Boundary Conditions to Improve Biomechanical Modeling of the Pulmonary Vasculature Post Lung Transplantation***Jonathan Ibinson (United States)***10:11–10:30** | Q&A

OA157 – Thrombosis**09:30–10:30** | West 202-204**Track: Cardiovascular/Cardiorespiratory Biomechanics: Methods, Models and Applications***Chair(s): Michele Marino (Italy), Keefe Manning (United States)***09:30–09:42** | OA157-01**Computational Modeling of Chemically- and Mechanically-Induced Thrombus Formation***Abdul Barakat (France)***09:42–09:45** | Q&A**09:45–09:53** | OA157-02**Quantifying Microvascular Topology of the Myocardium with Synchrotron X-ray Phase Contrast Micro-tomography to Investigate Microthrombi Occlusions***Ross Straughan (Switzerland)***09:53–09:56** | Q&A**09:56–10:04** | OA157-03**Real-Time Risk Stratification for Coronary Artery Thrombosis using Machine Learning***Karthik Menon (United States)***10:04–10:07** | Q&A**10:07–10:15** | OA157-04**Cannula-Driven Hemodynamics and Embolic Transport During Cardiopulmonary Bypass Using Validated Patient-Specific CFD-LPT Modeling***Bryan Good (United States)***10:15–10:18** | Q&A**10:18–10:26** | OA157-05**Lysis Of Microthrombi in a Multi-Scale In-Vitro Model of Coronary Microvascular Obstruction***Dominik Obrist (Switzerland)***10:26–10:30** | Q&A

OA158 – Ocular Biomechanics**09:30–10:30** | West 205-207**Track: Organ and Tissue Biomechanics***Chair(s): Miguel Ángel Ariza (Switzerland)***09:30–09:42** | OA158-01**Establishing Biomechanical Markers of Glaucoma***Vicky Nguyen (United States)***09:42–09:45** | Q&A**09:45–09:53** | OA158-02**Evaluating Posterior Boundary Conditions in Patient-Specific Finite Element Models of the Optic Nerve Head***Patricia M. Sabin (United States)***09:53–09:56** | Q&A**09:56–10:04** | OA158-03**Mechanical Softening of the Lamina Cribrosa Drives a Pro-Inflammatory Astrocyte Activation and Retinal Ganglion Cells Loss in a Rat Model of Chronic High Intraocular Pressure***Xiuqing Qian (China)***10:04–10:07** | Q&A**10:07–10:15** | OA158-04**Scleral Collagen Uncrimping Amplifies Nuclear Strain Relative to Fiber Strain***Xuehuan He (United States)***10:15–10:30** | Q&A

OA159 – Data-Driven Representation of Joint Motion**09:30–10:30** | West 109**Track: Musculoskeletal Biomechanics: Joints and Motion***Chair(s): Ariana Ortigas-Vasquez (Switzerland)***09:30–09:42** | OA159-01**Using Real-world Data to Better Understand the Influence of Gait Biomechanics on Function***Jocelyn F Hafer (United States)***09:42–09:45** | Q&A**09:45–09:57** | OA159-02**Tentative Title: Frontiers in Human Performance Research: Insights from Simulation and Machine Learning***Scott Delp (United States)***09:57–10:00** | Q&A**10:00–10:08** | OA159-03**Early Post-Injury Gait Deviations Predict Long-Term Hindlimb Kinematic Impairment After Medial Meniscal Transection in Rats***Young-Hui Chang (United States)***10:08–10:11** | Q&A**10:11–10:19** | OA159-04**Kneeformatics: Deriving Knee-Specific Motion Signature from Static Medical Imaging***Ahmet Erdemir (United States)***10:19–10:30** | Q&A

OA160 – Developmental and Age-Related Changes in the Dynamics of Balance and Posture

09:30–10:30 | West 110

Track: Human Motion and Performance: Balance, Posture and Control

Chair(s): Torstein Dhlín (Canada), Kristen Jakubowski (United States)

09:30–09:42 | OA160-01

Training Rapid Balance Reactions to Improve Safe Mobility in Older Adults

Avril Mansfield (Canada)

09:42–09:45 | Q&A

09:45–09:53 | OA160-02

Adaptation to Repeated Slip-Like and Trip-Like Perturbations During Walking in Older Adults With Mild Cognitive Impairment

Jessica Pitts (United States)

09:53–09:56 | Q&A

09:56–10:04 | OA160-03

Older Adults Demonstrate Altered Biomechanical Control of Their Lateral Center of Mass Trajectory in Response to Weighted Vest Walking

Nancy Nguyen (United States)

10:04–10:07 | Q&A

10:07–10:15 | OA160-04

Not All Movements Are Equal: Balance Recovery Across Daily Movements in Older Adults

Nikita Sharma (Germany)

10:15–10:18 | Q&A

10:18–10:26 | OA160-05

Advanced Age Alters Joint-Level Planning for and Response to Walking Perturbations

Emily Eichenlaub (United States)

10:26–10:30 | Q&A

OA161 – Intervertebral Disc and Labrum Mechanics**09:30–10:30** | West 223-224**Track: Musculoskeletal Biomechanics: Tissues***Chair(s): Alexander Synek (Austria), Christian Liebsch (Germany)***09:30–09:42** | OA161-01**Human In Vivo Disc Mechanics from MRI***Dawn M Elliott (United States)***09:42–09:45** | Q&A**09:45–09:53** | OA161-02**Dynamic Compression Moderates Rate Dependent Tensile Mechanics in the Annulus Fibrosus***Craig Almeida (United States)***09:53–09:56** | Q&A**09:56–10:04** | OA161-03**Quantitative Magnetic Resonance Imaging of Age-Related Adaptations to Glenoid Labrum Health***Colleen Vogel (United States)***10:04–10:07** | Q&A**10:07–10:15** | OA161-04**Trunk Tissue Asymmetry and Its Association with Aging, Disc Degeneration, and Physical Activity in Asymptomatic Adults***Asghar Rezaei (United States)***10:15–10:18** | Q&A**10:18–10:26** | OA161-05**Labral Mechanics After Femoroacetabular Impingement (FAI) Related Surgery: An Integrated In Vitro Imaging Study***Mohammadreza (Hooman) Kheshti (Canada)***10:26–10:30** | Q&A

OA162 – Occupational Biomechanics of the Spine**09:30–10:40** | West 217-219**Track: Rehabilitation Biomechanics and Human Factors: Occupational Biomechanics***Chair(s): Jack Callaghan (Canada), Patrick Ippersiel (Canada)***09:30–09:38** | OA162-01**Sex-Differences in Vertical and Cross-Axis Vibration Transmissibility to the Sacrum and Head During Seated Whole-Body Vibration Exposure***Ian Scagnetti (Canada)***09:38–09:41** | Q&A**09:41–09:49** | OA162-02**Predicting Sex Differences in Seated Whole-Body Vibration Transmissibility Using Body Composition and Anthropometric Measures***Ian Scagnetti (Canada)***09:49–09:52** | Q&A**09:52–10:00** | OA162-03**Effects of Accelerometer Orientation and Sex on Transmissibility During Seated Whole-Body Vibration Exposure***Eliza Cazzola (Canada)***10:00–10:03** | Q&A**10:03–10:11** | OA162-04**Investigation of an Objective Measurement of Lumbar Spine Segmental Stiffness***Erinn McCreath Frangakis (Canada)***10:11–10:14** | Q&A**10:14–10:22** | OA162-05**Powered Back Exoskeleton Reduces Epaxial Electromyography and Lumbar Moments During Lifting With Some Redistribution of Effort to the Lower Limbs***Grace Hunt (United States)***10:22–10:25** | Q&A**10:25–10:33** | OA162-06**The Effects of Height and Sex on Two-Person Team Lifting***Joanna M. Misquitta (Canada)***10:33–10:40** | Q&A

OA163 – Joint and Muscle Health**09:30–10:30** | West 221-222**Track: Orthopaedic Biomechanics: Trauma and Repair***Chair(s): Jessica Goetz (United States), Mark Taylor (Australia)***09:30–09:42** | OA163-01**Orthopaedic Trauma Implants: Expanding Performance Criteria and Analytical Design***William Lack (United States)***09:42–09:45** | Q&A**09:45–09:53** | OA163-02**A Non-Invasive Rat Model of ACL Rupture-Induced Osteoarthritis: Progression and Treatment Response Assessed by Mechanical and Histological Analysis***Jasmine Doan (Canada)***09:53–09:56** | Q&A**09:56–10:04** | OA163-03**Development of an In Vitro Knee Model for Dynamic Biomechanical Evaluation of Meniscus Allograft Positioning***Aiqin Liu (United Kingdom)***10:04–10:07** | Q&A**10:07–10:15** | OA163-04**Acute Functional Instability and Long-Term Structural and Behavioral Changes in Mice After Medial Meniscus Destabilization***Olivia Dyer (United States)***10:15–10:18** | Q&A**10:18–10:26** | OA163-05**Eccentric Contraction Improves Functional Outcomes in a Rat Model of Traumatic Muscle Injury***Fuad Bin Enam (United States)***10:26–10:30** | Q&A

OA164 – Computational Methods in Cell Mechanics**09:30–10:30** | West 220**Track: Cell Biomechanics: Methods and Models***Chair(s): Xiaobo Gong (China), Eoin McEvoy (Ireland)***09:30–09:42** | OA164-01**Computational Modelling of Cell-Biomaterial Interactions***Aurélie Carlier (Netherlands)***09:42–09:45** | Q&A**09:45–09:53** | OA164-02**Stiffness Perceived by Cells Inside Microporous, Bio-Combatible Scaffolds: An in Silico 3d Modelling Approach for Quantitative Biomechanical Analysis***Vasileios Vavourakis (Cyprus)***09:53–09:56** | Q&A**09:56–10:04** | OA164-03**Effect of Mechanical Alterations in Diabetic Red Blood Cells on Their Partitioning Patterns at Microvascular Bifurcations***Xin Zhou (China)***10:04–10:07** | Q&A**10:07–10:15** | OA164-04**Dynamic Astrocyte Volume and Force Modulation as Mechanisms to Regulate Interstitial Flow in the Brain***Jacqueline van Zyl (United States)***10:15–10:18** | Q&A**10:18–10:26** | OA164-05**Structural Determinants of Internal Cellular Force Balance Under Different Mechanical Stimuli***Lucie Jadrna (Czechia)***10:26–10:30** | Q&A

Coffee Break and Poster Viewing Day 4 With Poster Presenters in Attendance Day 4

Exhibit Hall – West Ballroom BCD

10:00–13:30 | Posters on Display

10:30–11:30 | Poster Presenters in Attendance



GREEN – Foyer Outside Entrance to Exhibit Hall

Cardiovascular/Cardiorespiratory Biomechanics Materials and Devices

Rows 1–2 • P4-001–P4-011

Cardiovascular/Cardiorespiratory Biomechanics: Methods, Models and Applications

Rows 2–10 • P4-012–P4-116



RED – Right Wall

Cardiovascular/Cardiorespiratory Biomechanics: Methods, Models and Applications

Rows 11–16 • P4-117–P4-129

Clinical Biomechanics

Rows 17–34 • P4-130–P4-165



BLUE – Back Wall in the Center

Clinical Biomechanics

Rows 35–42 • P4-166–P4-246



YELLOW – Left Side by the Windows and the Product Theater

Clinical Biomechanics

Rows 43–45 • P4-247–P4-270

Imaging and Biomedical Devices: Artificial Organs, Devices

Rows 45–46 • P4-271–P4-282

Imaging and Biomedical Devices: Assistive Technologies

Rows 46–47 • P4-283–P4-295

Imaging and Biomedical Devices: Imaging Fundamentals and Applied Research

Rows 47–53 • P4-296–P4-354

ES16 – The Asian-Pacific Association for Biomechanics Yamaguchi Medal in Biomechanics

11:30–12:30 | West 215-216

Track: Emerging Areas

11:30–11:33 | Introduction by APAB President Prof. Taiji Adachi, Kyoto University, Japan

Presentations by the Medal Winners highlighting their research journey, area of focus, and future directions:

11:33–11:41 | Ella Guy (New Zealand)

11:41–11:49 | Jihoon Ko (Korea, Republic of)

11:49–11:57 | Maxence Lavaill (Australia)

11:57–12:05 | Shailaja Seetharaman (Singapore)

12:05–12:13 | Takumi Sato (Japan)

12:13–12:21 | Xiangyu Xu (China)

12:21–12:26 | Ceremonial Awarding of Medals

12:26–12:30 | Photo Session

OA165 – Groundbreaking Normative Studies 1

11:30–12:40 | West Ballroom A

Track: Clinical Biomechanics

Chair(s): Ashley Collimore-Doherty (United States), Peter Fino (United States)

11:30–11:38 | OA165-01

Dynamic Balance Declines With Age Across the Stride Cycle

Lizeth Sloot (United Kingdom)

11:38–11:41 | Q&A

11:41–11:49 | OA165-02

Working Harder to Walk Slower: Treadmill-Based Gait Assessment Systematically Underestimates Overground Performance in Older Adults

Keven Santamaria-Guzman (United States)

11:49–11:52 | Q&A

11:52–12:00 | OA165-03

Beta- and Gamma-Band Cortical Connectivity During Destabilizing Pivoting Stepping Movement on a Robotic Elliptical Trainer

Matteo Pergami-Peries (United States)

12:00–12:03 | Q&A

12:03–12:11 | OA165-04

Objective Gait Performance Does Not Predict Mobility Satisfaction in Older Adults

Damaris Cifuentes (United States)

12:11–12:14 | Q&A

12:14–12:22 | OA165-05

Differences Between Young and Older Adult Knee Kinematics Can Inform Knee Arthroplasty Prosthesis Design and Selection

Tom Gale (United States)

12:22–12:25 | Q&A

12:25–12:33 | OA165-06

Step Variability Is Linked to Yaw Vestibular Sensitivity

Shawane' Patrick (United States)

12:33–12:40 | Q&A

OA166 – Energetics of Gait

11:30–12:40 | West 211-214

Track: Human Motion and Performance: Locomotion/Gait

Chair(s): Luke Jessup (United States), Jonas Rubenson (United States)

11:30–11:38 | OA166-01

Mechanisms for Maximal Leaping Across a Wide Range of Locomotion Speeds

Kat Daniels (United Kingdom)

11:38–11:41 | Q&A

11:41–11:49 | OA166-02

Ultrasound-Derived Leg Blood Flow Associates with the Metabolic Cost of Human Walking

Jose Anguiano-Hernandez (United States)

11:49–11:52 | Q&A

11:52–12:00 | OA166-03

Birds of a Feather Walk Together: A Simple Model Predicts Energy-Optimal Phase during Entrainment

Ryan Schroeder (Canada)

12:00–12:03 | Q&A

12:03–12:11 | OA166-04

Importance of Considering the Metabolic Cost of Walking in Gait Retraining Interventions

Ellen Hellman (Finland)

12:11–12:14 | Q&A

12:14–12:22 | OA166-05

Sequencing Leg Forces Drives the U-Shaped Metabolic Cost-Speed Relationship in Walking Across Adulthood

Elham Alijanpour (United States)

12:22–12:25 | Q&A

12:25–12:33 | OA166-06

Effects of Aging on Lower Extremity Joint Loading and Energy Cost of Walking at Different Gait Speeds and Step Rates

Dante Goss (United States)

12:33–12:40 | Q&A

OA167 – AI in Cardiovascular Biomechanics 1

11:30–12:30 | West 301

Track: Cardiovascular/Cardiorespiratory Biomechanics: Methods, Models and Applications

Chair(s): Daniel Hurtado (Chile), Aseem Milind Pradhan (France)

11:30–11:42 | OA167-01

Machine Learning Super-Resolution for Accelerated High-Fidelity Patient-Specific Cardiovascular Flow Simulations

Noelia Grande Gutierrez (United States)

11:42–11:45 | Q&A

11:45–11:53 | OA167-02

Left Ventricular Deformation and Strain Reconstruction from Limited CT Frames Using Physics-informed Inverse Modeling

Weiqiang Liu (Canada)

11:53–11:56 | Q&A

11:56–12:04 | OA167-03

Bayesian Inference of Lumped Cardiovascular Models Reveals Sex Differences in Ventricular–arterial Function

Beatrice Moscoloni (Belgium)

12:04–12:07 | Q&A

12:07–12:15 | OA167-04

CardioGraphFENet: A Rapid Deep-Learning Surrogate for Cardiac Myocardial Finite Element Modelling

Choon Hwai Yap (United Kingdom)

12:15–12:18 | Q&A

12:18–12:26 | OA167-05

Aneurysm Forecasting Studio: A Machine Learning Based Tool for Time-Series Prediction of Wall Growth and Lumen Remodeling in Abdominal Aortic Aneurysms

Juan Restrepo (United States)

12:26–12:30 | Q&A

OA168 – In Vivo Biomechanical Characterization

11:30–12:30 | West 302-305

Track: Musculoskeletal Biomechanics: Methods, Models and Applications

Chair(s): Qitao Tan (Hong Kong), Cameron Taylor (United States)

11:30–11:38 | OA168-01

Semi-Automated Subject-Specific Foot Modeling for Efficient and Accurate Plantar Pressure Analysis Across Arch Types

Olamide Hassan (Korea, Republic of)

11:38–11:41 | Q&A

11:41–11:49 | OA168-02

Novel Human Skeletal Muscle Biopsy Approach Allows Integration of Biomechanics and Biological Analysis

Richard Lieber (United States)

11:49–11:52 | Q&A

11:52–12:00 | OA168-03

Full-Field Quantification of Anisotropic Elasticity in Skeletal Muscle During Contraction

Roberto Pineda Guzman (United States)

12:00–12:03 | Q&A

12:03–12:11 | OA168-04

Female Pelvic Floor Muscle Strength Measured by Intravaginal Dynamometry Is Impacted by Arm Design and Protocol

Olena Klahsen (Canada)

12:11–12:14 | Q&A

12:14–12:22 | OA168-05

Novel 3-D Characterization of in Vivo Muscle Properties Illustrates Directional

Dependence in Resistance to Stress*Ridhi Sahani (United States)*

12:22–12:30 | Q&A

OA169 – Concussion/Brain Injury III

11:30–12:40 | West 202-204

Track: Injury Biomechanics*Chair(s): Xiaogai Li (Sweden), Marzieh Memar (United States)*

11:30–11:38 | OA169-01

Vessel Softening from TBI Increases Brain Vulnerability to Subsequent Head Trauma*Ken Monson (United States)*

11:38–11:41 | Q&A

11:41–11:49 | OA169-02

A Biomechanical–Mathematical Model Linking Brain Impact Biomechanics to Tau Protein Accumulation in Chronic Traumatic Encephalopathy*Jose González Cabrero (Portugal)*

11:49–11:52 | Q&A

11:52–12:00 | OA169-03

Development and Validation of Physics-Informed Neural Networks for Rapid Prediction of Brain Strain in Traumatic Brain Injury Modeling*Inyani Keri (Canada)*

12:00–12:03 | Q&A

12:03–12:11 | OA169-04

Predicting Mechanical Strain Relative to Axonal Orientation in Normal Pressure Hydrocephalus: A Biomechanical Model for Understanding Axonal Injury*Vahid Darvishi (United Kingdom)*

12:11–12:14 | Q&A

12:14–12:22 | OA169-05

Rapid Atlas-Based Predictions of Regional Brain Strains From Wearable Head Kinematics Using Diffusion MRI-Informed Machine Learning*Jacob Mathew (New Zealand)*

12:22–12:25 | Q&A

12:25–12:33 | OA169-06

Associations of Repetitive Head Impact Exposure With Brain Myelin Imaging and Multidomain Neurological Function

Adam Clansey (Canada)

12:33–12:40 | Q&A

OA170 – Biomechanics of the Female Reproductive System

11:30–12:30 | West 205-207

Track: Organ and Tissue Biomechanics

Chair(s): Shannon Li (United Kingdom), Kristin Myers (United States)

11:30–11:42 | OA170-01

Computational Modelling to Link Tissue Imaging to System Function in Pregnancy

Alys Clark (New Zealand)

11:42–11:45 | Q&A

11:45–11:53 | OA170-02

Estrogen Regulates Stiffness of Murine Cervical Extracellular Matrix

Kristin Myers (United States)

11:53–11:56 | Q&A

11:56–12:04 | OA170-03

Towards a Uterine Electromechanical Digital Twin during Late Pregnancy

Olivia Mergler (United States)

12:04–12:07 | Q&A

12:07–12:15 | OA170-04

Assessing the Influence of Maternal Pelvic Geometry on Birth Simulations Using Pelvimetry-Based Models

Morgane Devismes (France)

12:15–12:18 | Q&A

12:18–12:26 | OA170-05

Linking Collagen Microstructure to Uterine Mechanics Using Inflation and Inverse Finite Element Analysis

Amy Wagoner Johnson (United States)

12:26–12:30 | Q&A

OA171 – Developmental Bone Morphology and Joint Loading

11:30–12:30 | West 109

Track: Musculoskeletal Biomechanics: Joints and Motion

Chair(s): Julie Choisne (New Zealand), Erin Lee (Canada)

11:30–11:42 | OA171-01

Form and Function of the Foot and Ankle from Advanced Medical Imaging

Amy Lenz (United States)

11:42–11:45 | Q&A

11:45–11:53 | OA171-02

Measuring Changes in Femoral Shape During Growth: Reliability of Methods in Paediatric Data

Clara Egner (Austria)

11:53–11:56 | Q&A

11:56–12:04 | OA171-03

Automated MRI-Based Quantification of Femoral Growth Plate Orientation in Healthy Children

Kevin Kitir (Austria)

12:04–12:07 | Q&A

12:07–12:15 | OA171-04

The Importance of Neuromusculoskeletal Model Personalisation: A Paediatric Case Example of Extreme Femoral Deformity

Claire F. Jones (Australia)

12:15–12:18 | Q&A

12:18–12:26 | OA171-05

Quantification of 3D Trabecular Texture in the Femoral Head and Condyles Reveals the Locomotory Pattern in Humans and Sheep

Benjamin Zvi Rudski (Canada)

12:26–12:30 | Q&A

OA172 – Prevention of Injuries from Falls

11:30–12:30 | West 110

Track: Human Motion and Performance: Balance, Posture and Control

Chair(s): Andrew Laing (Canada), Stephen Robinovitch (Canada)

11:45–11:53 | OA172-02

Comparison of Ankle Muscle Activation Patterns During Self-initiated Versus Motor-induced Falls From Standing Height

Donggeon Kim (Korea, Republic of)

11:53–11:56 | Q&A

11:56–12:04 | OA172-03

Not All Falls Result in Injury in Older Adults: Distinct Risk Factors for Falls and Fall-Related Injuries

Junwoo Park (Korea, Republic of)

12:04–12:07 | Q&A

12:07–12:15 | OA172-04

Asymmetrical Step Initiation Strategies and Fall Risk in Individuals with Unilateral Lower Limb Amputation: Insights from the Choice Stepping Reaction Time Test

Victoria Spartacus (France)

12:15–12:18 | Q&A

12:18–12:26 | OA172-05

Anticipatory and Reactive Balance Control During Walking Entry and Exit on a Moving Platform

Romain Bechet (France)

12:26–12:30 | Q&A

OA173 – Biomechanical Imaging

11:30–12:30 | West 223-224

Track: Imaging and Biomedical Devices: Imaging Fundamentals and Applied Research

Chair(s): Tatiana Kochetkova (Switzerland), Uwe Wolfram (Germany)

11:30–11:42 | OA173-01

Large-Volume Micro-CT Imaging Combined With Biomechanical Testing: Interactions Between Bone and Implants

Egon Perilli (Australia)

11:42–11:45 | Q&A

11:45–11:53 | OA173-02

Dynamic Muscle Coordination Analysis Using Wearable Ultrasound: Advancing Biomechanical Assessment of Recovery

Erica King (United States)

11:53–11:56 | Q&A

11:56–12:04 | OA173-04

In-Vivo Radiation Dose During Dynamic Fluoroscopic Analysis of Knee Joint Motion

Raphael Surbeck (Switzerland)

12:04–12:07 | Q&A

12:07–12:15 | OA173-05

Stretching the Limits: Visualizing Epithelial Cell Behavior Under Cyclic Mechanical Load

David Jaworski (Germany)

12:15–12:30 | Q&A

OA174 – Occupational Biomechanics Technology

11:30–12:40 | West 217-219

Track: Rehabilitation Biomechanics and Human Factors: Occupational Biomechanics

Chair(s): Allison Clouthier (Canada), Kurt Beschoner (United States)

11:30–11:38 | OA174-01

A Predictive Model for Trips on a Ladder: Groundwork to Create a Ladder Climbing Safety Tool

Sarah Griffin (United States)

11:38–11:41 | Q&A

11:41–11:49 | OA174-02

An Opensource Toolbox for Ergonomic Analysis Using Xsens Awinda

Matthew Russell (Canada)

11:49–11:52 | Q&A

11:52–12:00 | OA174-03

Influences of Anti-Fatigue Mat Stiffness on Self-Reported Pain During Prolonged Standing and Biomechanical Metrics of Balance Control

Alyssa M. Tondat (Canada)

12:00–12:03 | Q&A

12:03–12:11 | OA174-04

Concurrent Validity of Markerless Motion Capture for Assessing Manual Lifting Kinematics

Mengjie Zhang (New Zealand)

12:11–12:14 | Q&A

12:14–12:22 | OA174-05

A Hybrid Two-Phase Framework for Posture Prediction of Manual Material Handling Tasks

Mengjie Zhang (New Zealand)

12:22–12:25 | Q&A

12:25–12:33 | OA174-06

Exploring the Efficacy of Different Field-Based Kinetic Measurement Approaches for the Calculation of Peak and Cumulative Low-Back Moments.

Justin Davidson (Canada)

12:33–12:40 | Q&A

OA175 – Fracture Fixation and Healing

11:30–12:30 | West 221-222

Track: Orthopaedic Biomechanics: Trauma and Repair

Chair(s): Hannah Daily (United States), Ralph Muller (Switzerland)

11:30–11:42 | OA175-01

Assessment of Fracture Healing in the Clinical Routine Setting

Peter Augat (Austria)

11:42–11:45 | Q&A

11:45–11:53 | OA175-02

Monitoring Longitudinal Healing in Ovine Large Defect Reconstruction using Virtual Mechanical Testing

Kylie Frew (United States)

11:53–11:56 | Q&A

11:56–12:04 | OA175-03

Efficient and Validated Finite Element Analysis for Quantitative Assessment of Fracture Healing

Peter Varga (Switzerland)

12:04–12:07 | Q&A

12:07–12:15 | OA175-04

A Tissue-Differentiation Framework to Predict Bone Formation Following Lumbar Interbody Fusion

Davide Ninarello (Italy)

12:15–12:18 | Q&A

12:18–12:26 | OA175-05

Optimal Strength for Mandibular Reconstruction With Low Bone Stock

Hans Gray (Australia)

12:26–12:30 | Q&A

OA176 – Experimental Cell Biology with Physical Modelling

11:30–12:30 | West 220

Track: Cell Biomechanics: Methods and Models

Chair(s): Laoise McNamara (Ireland), Viola Vogel (Switzerland)

11:30–11:42 | OA176-05

The Omnipresence of Fibronectin Fibers That Have Lost Their Tension in Various Diseases

Viola Vogel (Switzerland)

11:42–11:45 | Q&A

11:45–11:53 | OA176-01

Development of an Automated Cell Differentiation System Integrating AI-Based State Recognition and Precision Environmental Control for Scalable Neural Cell Production

Seongwoong Hong (Korea, Republic of)

11:53–11:56 | Q&A

11:56–12:04 | OA176-02

Synchronized and Metachronal Coordination in Macro-Scale Physical Models of Coupled, Autonomously Beating Cilia

Naomi Hsieh (United States)

12:04–12:07 | Q&A

12:07–12:15 | OA176-03

A Mechano-Osmotic Coupling Drives Stress-Dependent Growth in Breast Cancer Spheroids Revealed Through AI-Accelerated Discrete Cell Modelling

Eoin McEvoy (Ireland)

12:15–12:18 | Q&A

12:18–12:26 | OA176-04

Full-Field Elastography of the Cell Nucleus Reveals Peripheral Stiffening in Response to Strain

Corey Neu (United States)

12:26–12:30 | Q&A

LM4: Lunch Meetup 4

12:30–13:30

With more than 3,000 delegates attending the Congress, it can be difficult to find others who share your research interests or professional background. These informal Lunch Meetups are designed to help you connect with people working in similar fields, exchange ideas, and start new collaborations in a relaxed setting.

Simply grab your lunch from the Convention Centre Café on Level 1 and head to the designated meeting location for your interest group. There is no formal agenda or facilitator—just a casual opportunity to meet new people with shared interests.

Meet at the Following Locations:

Location 1 | Level 1 – Ocean Foyer (outside Rooms 121 & 122)

- **Clinical Biomechanics**
- **Rehabilitation Biomechanics and Human Factors: Occupational Biomechanics**

Location 2 | Level 1 – Ballroom Foyer

- **Cell Biomechanics: Methods and Models**
- **Musculoskeletal Biomechanics: Joints and Motion**
- **Musculoskeletal Biomechanics: Methods, Models and Applications**

Location 3 | Level 1 – Room 111

- **Human Motion and Performance: Balance, Posture and Control**
- **Human Motion and Performance: Locomotion/Gait**
- **Injury Biomechanics**
- **Orthopaedic Biomechanics: Trauma and Repair**

Location 4 | Level 2 – Outside Room 205

- **Cardiovascular/Cardiorespiratory Biomechanics: Methods, Models and Applications**
- **Imaging and Biomedical Devices: Imaging Fundamentals and Applied Research**
- **Organ and Tissue Biomechanics**

Job Market Poster Session (2/2) (Sign Up Required for Job Seekers)

12:45–13:30 | Outside West 211 - 214

The Job Market Poster Session connects delegates seeking academic or industry positions in biomechanics with institutions and organizations looking to recruit new talent. Job seekers will present posters showcasing their background, research, skills, and career interests, providing employers with an excellent opportunity to identify promising candidates, discuss career opportunities, and make valuable connections.

Guided Seawall Walk (Limited Capacity, Sign Up Required)

12:45–13:20 | Meeting Point: Vancouver Convention Centre, West Building, Burrard Street Entrance, Under the Globe

ES1 – Applied Biomechanics in Latin America: Outcomes that Advance Science while Supporting Communities

13:30–14:30 | West 208-209

Track: Biomechanics Education, Knowledge Translation and Outreach

13:30–13:40 | Introductory Remarks

Speaker Introductions and an Overview of Biomechanics Demographics in Latin America

13:40–14:10 | Presentations

The RISO Network: Integrative Approaches to Assessing Muscle Function and Health in Aging

Heiliane Fontana (Brazil)

Neuromuscular Adaptations and Bone Geometry: Preliminary Results of Different Research Projects From Pontificia Universidad

Julio Mello (Chile)

Control Motor, Biomecánica y Análisis del Movimiento en Disfunciones del Movimiento Humano: Outcomes From PUC Santiago

Mauricio Delgado (Chile)

A Decade of Studying Locomotion on Land in Uruguay: Findings and Next Steps

German Péquera (Uruguay)

Muscle Biomechanics Approached by Elastography: Developments and Applications From Latin America

Gustavo Grinspan (Uruguay)

Latinx in Biomechanics Initiative

Jonaz Moreno (United States)

14:10–14:25 | Panel Discussion and Q&A

14:25–14:30 | Closing Remarks

Wrap-Up of Key Conclusions and Take-Home Messages

ES17 – Accelerating the Use of Artificial Intelligence to Analyze Human Motion: Hands-on Tutorial and Discussion

13:30–14:30 | West 215-216

13:30–13:40 | Introduction to the Session

Jennifer Hicks (United States)

13:40–14:10 | Tutorial

AddBiomechanics Dataset and GaitDynamics Foundation Model

Janelle Kaneda (United States), Carmichael Ong (United States), Tian Tan (United States)

14:10–14:30 | Applications and Interactive Discussion:

Aaron Young (United States), Jennifer Hicks (United States)

OA177 – Groundbreaking Normative Studies 2

13:30–14:30 | West Ballroom A

Track: Clinical Biomechanics

Chair(s): Shawanee Patrick (United States), Romain Bechet (France)

13:45–13:53 | OA177-01

Effects of Running-Related Fatigue on Hip and Knee Muscle Synergies Among Male and Female Endurance Runners

Cinthuja Pathmanathan (Canada)

13:53–13:56 | Q&A

13:56–14:04 | OA177-02

Older Adults Exhibit Savings of Adapted Motor Patterns from Repeated Exposure to Virtually-Induced Fall-Related Anxiety

Kelly Poretti (United States)

14:04–14:07 | Q&A

14:07–14:15 | OA177-03

Eliminating the Distal-to-Proximal Redistribution in Older Adult Joint Mechanics Improves Walking Economy

Ningzhen Zhao (United States)

14:15–14:18 | Q&A

14:18–14:26 | OA177-04

Changes in Duty Factor in Response to Three Running Retraining Cues in Military Runners

Jennah Bulen (United States)

14:26–14:30 | Q&A

OA178 – Foot and Footwear Biomechanics During Gait**13:30–14:40** | West 211-214**Track: Human Motion and Performance: Locomotion/Gait***Chair(s): Katherine Boyer (United States), Karen Mickle (Australia)***13:30–13:38** | OA178-01**The Effects of Carbon Fiber Insoles on Plantar Intrinsic Foot Muscle Fatigability During Prolonged Walking***Megan Spencer (United States)***13:38–13:41** | Q&A**13:41–13:49** | OA178-02**Physiological, Biomechanical, and Perceptual Effects of Mass Placed Anteriorly vs Laterally on the Shank to Inform the Design of Powered Footwear Systems***Kristin Quah (United States)***13:49–13:52** | Q&A**13:52–14:00** | OA178-03**Spatiotemporal Plantar Pressure Differences Between Individuals with CMT and Healthy Controls***Tyce Marquez (United States)***14:00–14:03** | Q&A**14:03–14:11** | OA178-04**The Terrain Not Taken: The Effects of Trail and Road Running on Ankle Injury Predictors***Key Nahan (United States)***14:11–14:14** | Q&A**14:14–14:22** | OA178-05**Mass Distributions of Powered Footwear Systems Affect Swing Leg Biomechanics***Julia Butterfield (United States)***14:22–14:25** | Q&A**14:25–14:33** | OA178-06**Influence of Textured Insoles on Footstrike Characteristics and Joint Moments During Running***Nicolas Silon (Canada)***14:33–14:40** | Q&A

OA179 – AI in Cardiovascular Biomechanics 2**13:30–14:30** | West 301**Track: Cardiovascular/Cardiorespiratory Biomechanics: Methods, Models and Applications***Chair(s): Umberto Morbiducci (Italy), Sandra Loerakker (Netherlands)***13:30–13:42** | OA179-01**Hybrid Mechanistic and Data-driven Cardiovascular Models: a Neurovascular Application***Sara Bridio (Italy)***13:42–13:45** | Q&A**13:45–13:53** | OA179-02**CoronaryFlow-Diffusion: A Physics-informed Conditional Diffusion Model for High-fidelity 3D Coronary Flow Field Reconstruction***Bao Li (China)***13:53–13:56** | Q&A**13:56–14:04** | OA179-03**Modeling the Evolution of Constitutive Response of Vein Grafts in Coronary Artery Bypass Graft Procedure Using Constitutive Artificial Neural Networks***Divya Adil (United States)***14:04–14:07** | Q&A**14:07–14:15** | OA179-04**AI-Based Ensemble Approaches to Anticipate Symptom Progression in Patients with an Abdominal Aortic Aneurysm***Juan Restrepo (United States)***14:15–14:18** | Q&A**14:18–14:26** | OA179-05**AI-Driven Estimation of Patient-Specific Aortic Wall Mechanical Properties for Improved Biomechanical Simulation***Ione Ianniruberto (Italy)***14:26–14:30** | Q&A

OA180 – Bone Adaptation Under Mechanical Loading**13:30–14:40** | West 302-305**Track: Musculoskeletal Biomechanics: Methods, Models and Applications***Chair(s): Tatiana Kochetkova (Switzerland), Gudrun Schappacher-Tilp (Austria)***13:30–13:38** | OA180-01**C57BL/6N Mouse as a Model of the Age-Related Decline in the Matrix Quality of Bone***Emily Berestesky (United States)***13:38–13:41** | Q&A**13:41–13:49** | OA180-02**Activity-Dependent Cortical Stress and Proximal Femur Stress Recovery After Total Hip Replacement***Wissal Mesfar (Saudi Arabia)***13:49–13:52** | Q&A**13:52–14:00** | OA180-03**Prediction of Bone Loss Due to Altered Mechanical Stimulation in Transfemoral and Through-Knee Amputees***Andrew Phillips (United Kingdom)***14:00–14:03** | Q&A**14:03–14:11** | OA180-04**A Bone Remodeling Model Integrating Calcium–Phosphate Homeostasis and Mechanical Loading***Gudrun Schappacher-Tilp (Austria)***14:11–14:14** | Q&A**14:14–14:22** | OA180-05**Structural Dependence of Damage Evolution and Remodeling in Trabecular Bone***Yusei Akachi (Japan)***14:22–14:25** | Q&A**14:25–14:33** | OA180-06**Improved Trabecular Microarchitecture Representation in a Whole Bone Adaptation Model: A Preliminary Study Using a Voronoi Network With Beam and Shell Elements***Muhammad Yusril Sulaiman (United Kingdom)***14:33–14:40** | Q&A

OA181 – Military Trauma**13:30–14:30** | West 202-204**Track: Injury Biomechanics***Chair(s): Spyros Masouros (United Kingdom), Simon Ouellet (Canada)***13:30–13:42** | OA181-01**Review of Experimental Techniques for Blast Related Neurotrauma***Cynthia A. Bir (United States)***13:42–13:56** | Q&A**13:56–14:04** | OA181-03**A Microstructure-Based Material and Failure Model for Finite Element Simulation of Skin Lacerations Under Blunt Impact***Felicitas Lanzl (Germany)***14:04–14:07** | Q&A**14:07–14:15** | OA181-04**Lung Injury Risk Curves for Behind Armor Blunt Trauma***Jared Koser (United States)***14:15–14:18** | Q&A**14:18–14:26** | OA181-05**Computational Model of Shock Tube Loading on the Mouse Eye***Kelly A. Clingo (United States)***14:26–14:30** | Q&A

OA182 – Knee Joint and Osteoarthritis**13:30–14:30** | West 205-207**Track: Organ and Tissue Biomechanics***Chair(s): Ilse Jonkers (Belgium), Petri Tanska (Finland)***13:30–13:42** | OA182-01**Residual Knee Kinematics Following Combined ACL and ALL Reconstruction***Seungbum Koo (Korea, Republic of)***13:42–13:45** | Q&A**13:45–13:53** | OA182-02**Effects of Preservation on Tensile Properties and Structure of the Meniscus***Chester Jar (Canada)***13:53–13:56** | Q&A**13:56–14:04** | OA182-03**Kneeview: An Open-Source Repository of Patient-Specific Knee Geometries and Structured Meshes***Renate Janssen (Spain)***14:04–14:07** | Q&A**14:07–14:15** | OA182-04**Gait and Tibial Cartilage Contact Pressure in Children with Cerebral Palsy vs. Typically Developing Peers: A Musculoskeletal–Finite Element Approach***Dongfei Huo (United Kingdom)***14:15–14:18** | Q&A**14:18–14:26** | OA182-05**Synovial Molecule Diffusion into the Articular Cartilage Contributes to Knee Osteoarthritis: Patient-Specific Multiscale Simulations***Andreu Pascuet-Fontanet (Spain)***14:26–14:30** | Q&A

OA183 – Joint Morphology, Pathology, and Loading**13:30–14:30** | West 109**Track: Musculoskeletal Biomechanics: Joints and Motion***Chair(s): Thor Besier (New Zealand), Lauren Welte (Canada)***13:30–13:42** | OA183-01**Interplay Between Musculoskeletal Morphology, Gait Pattern and Bone Loads in Children With and Without Torsional Deformities: Insights Gained From Multi-Scale Mechanobiological Simulations to Predict Growth Trends***Willi Koller (Austria)***13:42–13:45** | Q&A**13:45–13:53** | OA183-02**Statistical Shape Modeling Reveals Sex-Specific Relationships Between Three-Dimensional Combinations of Tibiofemoral Bony Geometry and Knee Kinematics and ACL Force in Adult Cadaveric Knees***Lexie Bae (United States)***13:53–13:56** | Q&A**13:56–14:04** | OA183-03**Influence of Hip Joint Center Location and Walking Patterns on Hip Joint Contact Forces in Females with Acetabular Dysplasia***Ria Rao (United States)***14:04–14:07** | Q&A**14:07–14:15** | OA183-04**Cam Femoroacetabular Impingement Surgery Partially Restores Hip Motion and Balance One Year Postoperatively***Etienne Joulin (Canada)***14:15–14:18** | Q&A**14:18–14:26** | OA183-05**Increased Muscle Synergy and Activity in Post-Operative Cam FAI***Etienne Joulin (Canada)***14:26–14:30** | Q&A

OA184 – Assistive Devices for Enhancing Balance in Humans**13:30–14:30** | West 110**Track: Human Motion and Performance: Balance, Posture and Control***Chair(s): Jean-Sebasien Blouin (Canada), Ameer Latreche (Canada)***13:30–13:42** | OA184-01**Stabilizing Humans With Personalized Exoskeletons and Assistive Devices***Katja Mombaur (Germany)***13:42–13:45** | Q&A**13:45–13:53** | OA184-02**Influence of Ankle Exoskeleton on Human Joint Level Force Responsiveness and Control***Amro Alshareef (United States)***13:53–13:56** | Q&A**13:56–14:04** | OA184-03**Effects of Passive Heel Vibration on Gait and Postural Stability in Older Adults***Hyesu Son (Korea, Republic of)***14:04–14:07** | Q&A**14:07–14:15** | OA184-04**Increasing Footwear Bending Stiffness Does Not Change Direction-Specific Functional Base of Support in Older Adults***Paula Kramer (United States)***14:15–14:18** | Q&A**14:18–14:26** | OA184-05**Plantar Intrinsic Muscle Control of Postural Stability and Functional Sway Capacity: The Effects of Sway Direction and Footwear Bending Stiffness***Kavya Katugam-Dechene (United States)***14:26–14:30** | Q&A

OA185 – AI in Imaging 1**13:30–14:30** | West 223-224**Track: Imaging and Biomedical Devices: Imaging Fundamentals and Applied Research***Chair(s): Greet Kerckhofs (Belgium), Alberto Redaelli (Italy)***13:30–13:42** | OA185-05**TBD***Farhad Nezami (United States)***13:42–13:45** | Q&A**13:45–13:53** | OA185-01**Brain Vascular Age and Generative Modeling of Cerebrovascular Aging***Kaveh Laksari (United States)***13:53–13:56** | Q&A**13:56–14:04** | OA185-02**Deep Learning Super-Resolution for Preclinical Bone Imaging: Reconstructing Trabecular and Cortical Microarchitecture from MicroCT Imaging***Amine Lagzouli (Australia)***14:04–14:07** | Q&A**14:07–14:15** | OA185-03**AI-Based Automatic Tool for the Recognition of Coronary Anomalies***Alessandro Caimi (Italy)***14:15–14:18** | Q&A**14:18–14:26** | OA185-04**Hierarchical Deep Reinforcement Learning Coordinates In Silico Agent-Based Cellular Functions of Bone Remodeling from Time-Lapsed In Vivo Imaging***Friederike A. Schulte (Switzerland)***14:26–14:30** | Q&A

OA186 – Occupational Biomechanics of the Shoulder**13:30–14:30** | West 217-219**Track: Rehabilitation Biomechanics and Human Factors: Occupational Biomechanics***Chair(s): Jason Bouffard (Canada), Yiyang Chen (United States)***13:30–13:42** | OA186-05**Occupational Shoulder Biomechanics: Over 25 Years Later, and the Working Shoulder Is as Fascinating (and Important!) Now as It Was Then***Clark Dickerson (Canada)***13:42–13:45** | Q&A**13:45–13:53** | OA186-01**The Influence of Cashier Workstation Arrangement on Muscular Demands in the Upper Extremity***Clark Dickerson (Canada)***13:53–13:56** | Q&A**13:56–14:04** | OA186-02**Effects of Hand Dominance, Sex, and Fatigue on Shoulder Muscle Synergies During a Repetitive Overhead Task: A Preliminary Study***Yiyang Chen (Canada)***14:04–14:07** | Q&A**14:07–14:15** | OA186-03**Interaction Forces at the Pelvis–Belt Interface of a Passive Shoulder Exoskeleton and Their Effect on Lumbar Joint Loading***Chris Hayot (France)***14:15–14:18** | Q&A**14:18–14:26** | OA186-04**The Long & Short of It: Vertical Range & Load Impact Effort Durations of Lifting & Lowering Tasks***Gillian Slade (Canada)***14:26–14:30** | Q&A

OA187 – Orthopaedic Mechanobiology in Tissue Engineering 1**13:30–14:30** | West 221-222**Track: Tissue Engineering: Mechanobiology***Chair(s): Jill Middendorf (United States), Jenny Puetzer (United States)***13:30–13:42** | OA187-05**Tensional Homeostasis Disruption and Tissue Stiffening Guidance of Soft Tissue Mineralization***Jonathan Butcher (United States)***13:42–13:45** | Q&A**13:45–13:53** | OA187-01**Implanted Microscaffolds Can Control the Mechanobiology of Fibrotic Progression***Claudio Conci (Italy)***13:53–13:56** | Q&A**13:56–14:04** | OA187-02**Microneedles Patch With Tunable Stiffness Regulates Wound Scar-Free Repair***Danli Chen (China)***14:04–14:07** | Q&A**14:07–14:15** | OA187-03**Nanovibrational Control of Chondrogenic Differentiation***Ioanna Rigou (United Kingdom)***14:15–14:18** | Q&A**14:18–14:26** | OA187-04**Wireless Mechanical Stimulation Upregulates the Foreign Body Response to Biomedical Implants Through Immune Cell Pathways***Emily Galvin (United States)***14:26–14:30** | Q&A

OA188 – Bone and Joint Biomechanics – Regeneration and Remodeling

13:30–14:40 | West 220

Track: Orthopaedic Biomechanics: Sports Medicine

Chair(s): Steve Boyd (Canada), Anna-Maria Liphardt (Germany)

13:30–13:38 | OA188-01

Two-Year Sheep In Vivo Study Of Porous Calcium Phosphate Implant Anchored By Ultrasonically Liquefied Polymer, For Sports Medicine Applications: Short-Term Micro-CT Bone Ingrowth Analysis

Alice Della Casa (Switzerland)

13:38–13:41 | Q&A

13:41–13:49 | OA188-02

ACL Reconstruction is Associated with Significant Differences in Contralateral Tibial Morphology Compared to Controls

Kevin Dibbern (United States)

13:49–13:52 | Q&A

13:52–14:00 | OA188-03

Meniscal Kinematics Following Posterior Medial Meniscus Root Repair with Adjustable All-Suture Anchor Aperture Fixation: A Cadaveric Biomechanical Evaluation

Benjamin Smith (United States)

14:00–14:03 | Q&A

14:03–14:11 | OA188-04

Integrating Computational Modeling and Quantitative MRI to Relate Knee Instability and Longitudinal Changes in ACL Graft Composition: A Framework to Understand Mechanisms of Early Graft Failure

Isabella Gomez Hjerthen (United States)

14:11–14:14 | Q&A

14:14–14:22 | OA188-05

Risk of Lateral Extraarticular Tenodesis Graft Slippage Is Highly Sensitive to Femoral Anchor Location and the Flexion Angle at Which the Graft Is Anchored

Joshua Roth (United States)

14:22–14:25 | Q&A

14:25–14:33 | OA188-06

Bonenet: Rapid and Clinically Feasible Femoral Neck Load Prediction Using Neural Network

Zainab Altai (United Kingdom)

14:33–14:40 | Q&A

ES2 – Breaking the Data Deadlock: Fast-Track Debates on Kinematic Data Sharing in Biomechanics

14:45–15:45 | West 208-209

Track: Biomechanics Education, Knowledge Translation and Outreach

Chair(s): Ariana Ortigas-Vásquez (Switzerland), Fransiska Bossuyt (Switzerland)

14:45–14:55 | Opening Remarks

Introduction to the Kinematic Atlas Initiative, Summary of Discussions and Outcomes From ISB, Progress Made Since the Meeting, Identification of Key Areas of Controversy, and Overview of the Speed Debate Format and Session Objectives.

14:55–14:58 | Question 1 Introduction and Preliminary Vote:

Standardization – Rigid Rules vs. Flexible Guidelines.

Michael Rainbow (Canada), Janie Wilson (Canada)

14:58–15:10 | Question 1 Speed Debate

15:10–15:11 | Comparison of Voting Results

15:11–15:14 | Question 2 Introduction and Preliminary Vote:

Data Quality – Repository-Ready Perfection vs. Pragmatic Sharing.

Heath Henninger (United States), Ahmet Erdemir (United States)

15:14–15:24 | Question 2 Speed Debate

15:24–15:25 | Comparison of Voting Results

15:25–15:28 | Question 3 Introduction and Preliminary Vote:

Industry Access – Partner or Predator? Access vs. Support.

Christopher Roche (United States), William Taylor (Switzerland)

15:28–15:38 | Question 3 Speed Debate

15:38–15:39 | Comparison of Voting Result

15:39–15:45 | Next Steps and Closing Discussion

ES18 – Technical Challenges and New Approaches to Hand and Wrist Biomechanics: An Interactive Workshop by Hand and Wrist Biomechanics International

14:45–15:45 | West 215-216

Chair(s): Angela Kedgley (United Kingdom), Trey Crisco (USA)

14:45–14:50 | Introductory Remarks

14:50–14:59 | Acquisition and Use of Hand Biomechanics Metrics in the Clinic

Lisa Reissner (Switzerland)

14:59–15:03 | Questions and Discussion

15:03–15:12 | Ultrasound in Small Spaces

Fabian Mounongo (Belgium)

15:12–15:16 | Questions and Discussion

15:16–15:25 | CT Imaging for Customization of Robotic Testing of the Hand and Wrist

Trey Crisco (United States)

15:25–15:29 | Questions and Discussion

15:29–15:38 | AI Approaches for Non-invasive Assessment of Thumb Osteoarthritis

Mahdi Mohseni (United Kingdom)

15:38–15:42 | Questions and Discussion

15:42–15:45 | Open Discussion and Closing Remarks

OA189 – Groundbreaking Normative Studies 3**14:45–15:55** | West Ballroom A**Track: Clinical Biomechanics***Chair(s): Kirsty McDonald (Australia), Julie Choisine (New Zealand)***14:45–14:53** | OA189-01**Postpartum Biomechanical Adaptations of the Linea Alba in a Rat Model: Implications for Diastasis Recti Abdominis in Women***Sabrina Sinopoli (Canada)***14:53–14:56** | Q&A**14:56–15:04** | OA189-02**The Impact of Pregnancy on Hip, Knee, and Ankle Strength***Kaitlyn Kleeman (United States)***15:04–15:07** | Q&A**15:07–15:15** | OA189-03**High-Functioning Older Adults Use Greater Muscle Contributions to Whole-Body Angular Momentum than Younger Adults to Regulate Balance***Nikolaj Freschlin (United States)***15:15–15:18** | Q&A**15:18–15:26** | OA189-04**Age-related Differences in Locomotor Response to Fall-Related Anxiety in Virtual Reality Settings Across Time***Kelly Poretti (United States)***15:26–15:29** | Q&A**15:29–15:37** | OA189-05**Does Prefrontal Cortex Activation Predict Decision-Making Performance on a Reactive Jump Landing Task?***Alexandra Lynch (United States)***15:37–15:40** | Q&A**15:40–15:48** | OA189-06**Arm Swing as a Mediator of Age-related Slip-Fall Risk***Feng Yang (United States)***15:48–15:55** | Q&A

OA190 – Sex Differences**14:45–15:45** | West 211-214**Track: Human Motion and Performance: Sports***Chair(s): Jennifer Gruenhagen (United States), Ilne Mylle (Canada)***14:45–14:57** | OA190-01**Specificity for Whom? The Data Deficit Locking Female Athletes Out of AI-Informed Biomechanics***Jacqueline Alderson (United States)***14:57–15:00** | Q&A**15:00–15:08** | OA190-02**Female Hip Joint Contact Differences in Table Tennis Are Associated With Anatomical Shape and Not Mechanical Loading***Justin Fernandez (New Zealand)***15:08–15:11** | Q&A**15:11–15:19** | OA190-03**Interlimb Strength and Loading Characteristics During Dynamic Tasks in Female Special Operation Forces Personnel***Tatiana Djafar (United States)***15:19–15:22** | Q&A**15:22–15:30** | OA190-04**Sex-differences in Preparatory Step Biomechanics During a 90° Cutting Task***Katherine Batista (Canada)***15:30–15:33** | Q&A**15:33–15:41** | OA190-05**Neuromuscular Activation Patterns During Dual Task Cutting in NCAA Soccer Players with and without Ankle Sprains***Abigail McCarthy (United States)***15:41–15:45** | Q&A

OA191 – AI in Cardiovascular Biomechanics 3**14:45–15:45** | West 301**Track: Cardiovascular/Cardiorespiratory Biomechanics: Methods, Models and Applications***Chair(s): Noelia Grande G3tierrez (United States), Zhiyong Li (Australia)***14:45–14:57** | OA191-01**Pulmonary Digital Twins for Mechanical Ventilation: Development and Validation of Poromechanical Lung Models for Acute Respiratory Distress Syndrome***Daniel Hurtado (Chile)***14:57–15:00** | Q&A**15:00–15:08** | OA191-02**Non-Invasive Estimation of Pulmonary Vascular Pressure Using In-Vivo Imaging, In-Silico Modeling, and Physics-Informed Neural Networks***Emilio Mendiola (United States)***15:08–15:11** | Q&A**15:11–15:19** | OA191-03**Graph Neural Networks for Classification of Abdominal Aortic Aneurysms from CTA-derived Surface Graphs***Juan C. Restrepo (United States)***15:19–15:22** | Q&A**15:22–15:30** | OA191-04**Non-invasive Quantification of Left Ventricular Myocardial Stiffness In Vivo Using DENSE MRI and a Physics-Informed Constitutive Model***Tawfik Hussein, (United States)***15:30–15:33** | Q&A**15:33–15:41** | OA191-05**Aortic Wall Biomechanics in Marfan Versus Non-Marfan Patients: Linking FE Simulations and Geometric Deep Learning***Davide Astori (Italy)***15:41–15:45** | Q&A

OA192 – IMU-Based Musculoskeletal Kinematics and Kinetics**14:45–15:51** | West 302-305**Track: Musculoskeletal Biomechanics: Methods, Models and Applications***Chair(s): Hendrik Schmidt (Germany), Reed Gurchiek (United States)***14:45–14:53** | OA192-01**Long-Term Implantable Sensor System for High-Resolution In Vivo Spinal Kinematics in Large Animal Models***Sandra Reitmaier (Germany)***14:53–14:56** | Q&A**14:56–15:04** | OA192-02**Sensitivity of a Soft Tissue Kalman Filter to Material Parameters***Genevieve Bonnor (Canada)***15:04–15:07** | Q&A**15:07–15:15** | OA192-03**IMU Misalignment Correction and Calibration Methods for Patient-Placed IMUs in Telemedicine Segmental Symmetry Gait Analysis***Joseph Redmond (United States)***15:15–15:18** | Q&A**15:18–15:26** | OA192-04**Obtaining Dynamic Soft Tissue Model and Mechanical Properties In-Vivo Using Wearable Inertial Measurement Unit Sensors***Vishak Nandan Aathresh (Canada)***15:26–15:29** | Q&A**15:29–15:37** | OA192-05**A Tightly Coupled IMU-to-Model Method for Estimating Shoulder Kinematics and Kinetics***Hassan Osman (Netherlands)***15:37–15:40** | Q&A**15:40–15:48** | OA192-06**Reconstructing Intermediate Spinal Segment Positions Using Two Inertial Measurement Units: A Proof-of-Concept Study***Roelien Smit-Russcher (Netherlands)***15:48–15:51** | Q&A

OA193 – Spine Biomechanics and Injury**14:45–15:55** | West 202-204**Track: Injury Biomechanics***Chair(s): Loay Al-Salehi (Canada), Gunter Siegmund (United States)***14:45–14:53** | OA193-01**Variations in Cervical Muscle Morphology: Implications for Parametric Human Models and Ergonomic Safety Design***Jaron Larson (United States)***14:53–14:56** | Q&A**14:56–15:04** | OA193-02**Associations Between Muscular Strength and Shock Exposure at the Head and the Lumbar Spine During Downhill Mountain Biking***Barbara Halmai (United Kingdom)***15:04–15:07** | Q&A**15:07–15:15** | OA193-03**A Novel Neck Surrogate that Recreates Buckling Mechanics in Head Compressive Loading***AJ Hinman (Canada)***15:15–15:18** | Q&A**15:18–15:26** | OA193-04**Velocity of Spinal Cord Injury Matters – Comparing Contusion and Dislocation in a Cervical Rat Model***Alexander Burden (Canada)***15:26–15:29** | Q&A**15:29–15:37** | OA193-05**A User-Centered Biomechanical Approach to Reduce Low-Back Load in Circus Russian Bar Porters***Pierre Schmidt (Canada)***15:37–15:40** | Q&A**15:40–15:48** | OA193-06**Influence of Intervertebral Disc Proximity on Hemorrhagic Severity in Porcine Spinal Cord Injury: A Biomechanical and Semi-Automated Imaging Assessment***Amirhossein Borjali (Canada)***15:48–15:55** | Q&A

OA194 – Spine in Health and Disease**14:45–15:45** | West 205-207**Track: Organ and Tissue Biomechanics***Chair(s): Syn Schmitt (Germany)***14:45–14:57** | OA194-01**Computational Approaches for the Neural Control of the Human Spine***Syn Schmitt (Germany)***14:57–15:00** | Q&A**15:00–15:08** | OA194-02**More Bone, More Problems: Compromised Microarchitecture of Osteosclerotic Matrix in Prostate Cancer Bone Metastasis***Naomi Jung (Canada)***15:08–15:11** | Q&A**15:11–15:19** | OA194-03**Ageing Increases Stiffness and Disrupts Strain Distribution in Human Lumbar Intervertebral Discs: Implications for Constitutive Modelling and Boundary Conditions Definition***Margherita Pasini (Italy)***15:19–15:22** | Q&A**15:22–15:30** | OA194-04**Lytic Lesion Size and Location Affect the Compressive Failure Load of Human Metastatic Vertebrae Calculated With Subject Specific Finite Element Models***Robert Roger (United Kingdom)***15:30–15:33** | Q&A**15:33–15:41** | OA194-05**Examining the Mechanical Contribution of Elastin in the Bovine Annulus Fibrosus***Sabrina Sinopoli (Canada)***15:41–15:45** | Q&A

OA195 – Knee Biomechanics and Osteoarthritis**14:45–15:45** | West 109**Track: Musculoskeletal Biomechanics: Joints and Motion***Chair(s): Elise Laende (Canada), Laura Diamond (Australia)***14:45–14:57** | OA195-01**Knee Deep in Real-World Joint Mechanics***Emily Miller (United States)***14:57–15:00** | Q&A**15:00–15:08** | OA195-02**Longitudinal Joint Mechanics in a Post-Traumatic Osteoarthritis Mouse Model Using In Vivo image-Guided Mechanical Evaluation.***Emma C. Boersma (Australia)***15:08–15:11** | Q&A**15:11–15:19** | OA195-03**Ultrasound Evaluation of Acute Knee Cartilage Response After Walking in Patients with Knee Osteoarthritis***Derek Pamukoff (Canada)***15:19–15:22** | Q&A**15:22–15:30** | OA195-04**In Vivo Dynamic Stereo X-Ray Analysis Shows Medial and Lateral Tibial Slope are Correlated with Knee Mechanics after Anterior Cruciate Ligament Reconstruction***Kristen Seballos (United States)***15:30–15:33** | Q&A**15:33–15:41** | OA195-05**The Effectiveness of Robotic Total Knee Arthroplasty on Restoring Knee Motion and Improving Clinical Outcomes***Shawn Robbins (Canada)***15:41–15:45** | Q&A

OA196 – Neuromechanics of Balance and Postural Control**14:45–15:45** | West 110**Track: Human Motion and Performance: Balance, Posture and Control***Chair(s): Niels Brouwer (Switzerland), Surabhi Simha (United States)***14:45–14:53** | OA196-01**Effect of Bone-Anchored Limb Use on Segmental Angular Momenta during Walking***Grace Georgiou (United States)***14:53–14:56** | Q&A**14:56–15:04** | OA196-03**Motor Module Generalization Across Walking and Standing Perturbations is Associated with Walking Balance Performance in Older Adults***Reece Lawrence (United States)***15:04–15:07** | Q&A**15:07–15:15** | OA196-04**The Mechanical Boundaries of Upright Standing Shape Our Preferred Posture***Amin M Nasrabadi (Canada)***15:15–15:18** | Q&A**15:18–15:26** | OA196-05**Cognition–Perception Interplay in Postural Control Among Individuals with Diabetes Mellitus***Kai Cheng (United States)***15:26–15:29** | Q&A**15:29–15:37** | OA196-06**Uneven Beginnings: Anticipatory Postural Adjustments and Muscle Quality Asymmetry During Gait Initiation at a Self-Selected Speed***Brandon Peoples (United States)***15:37–15:45** | Q&A

OA197 – AI in Imaging 2**14:45–15:55** | West 223-224**Track: Imaging and Biomedical Devices: Imaging Fundamentals and Applied Research***Chair(s): Karen Troy (United States), Steven Boyd (Canada)***14:45–14:53** | OA197-01**BD-Net: Bidirectional Distance Loss Function for Enhancing Vascular Structure Connectivity***Luyao Fan (China)***14:53–14:56** | Q&A**14:56–15:04** | OA197-02**Making the Most of 3D Ultrasound Data to Improve DDH Detection: Identifying the Posterior Lip and Greater Trochanter***Chloë Stiles (Canada)***15:04–15:07** | Q&A**15:07–15:15** | OA197-03**Quantitative Multimodal and Longitudinal Characterization of Fibrotic Response: An Approach Integrating MRI and Digital Histopathology in a Chicken Embryo Model***Giulia Lodola (Italy)***15:15–15:18** | Q&A**15:18–15:26** | OA197-04**Classification of Bone Demineralization Patterns with HR-pQCT Texture Metrics and Derived Scores: Bone Microarchitectural Phenotypes as Indicators of Metabolic Disease?***Johannes Bereiter-Payr (Austria)***15:26–15:29** | Q&A**15:29–15:37** | OA197-05**Robust Hip aBMD Measurement From Photon-Counting CT Projections: Overcoming DXA Positioning Constraints***Elena Paravisi (Belgium)***15:37–15:40** | Q&A**15:40–15:48** | OA197-06**Accuracy of a Customized Biplane Radiography with Dynamic Flat Panel Detector and Instrumented Treadmill in Multiple Joints***Minghe Yao (China)***15:48–15:55** | Q&A

OA198 – Tissue Engineered In-vitro Diseased Models**14:45–15:45** | West 217-219**Track: Tissue Engineering: Methods, Models and Applications***Chair(s): Kristan Worthington (United States)***14:45–14:57** | OA198-01**Effects of Interstitial Fluid Flow and Chemokine Transport on Immune Cell Transport***James Moore (United Kingdom)***14:57–15:00** | Q&A**15:00–15:08** | OA198-02**Advanced Humanised and Vascularized Bone Model Recapitulating Molecular and Functional Signatures of Osteoporotic Bone for Therapeutic Research***Muhammad Munam Mustafa Bukhari (Ireland)***15:08–15:11** | Q&A**15:11–15:19** | OA198-03**Investigation of Long-Term Culture of a Placental Organoid-on-a-Chip for Modeling Pregnancy Hypertension***Kinoka Kubo (Japan)***15:19–15:22** | Q&A**15:22–15:30** | OA198-04**Optimizing A Novel Tissue-penetrating Hydrogel for Mechanical Reinforcement of Degraded Cartilage***Eng Kuan Moo (Canada)***15:30–15:45** | Q&A

OA199 – Orthopaedic Mechanobiology in Tissue Engineering 2**14:45–15:45** | West 221-222**Track: Tissue Engineering: Mechanobiology***Chair(s): Lawrence Bonassar (United States), Dominique Pioletti (Switzerland)***14:45–14:57** | OA199-01**Mechanics, Models and Medicine: In Silico Tools for Translating Tissue Engineering Approaches to Clinical Care***Liesbet Geris (Belgium)***14:57–15:00** | Q&A**15:00–15:08** | OA199-02**Mechanobiological Response of Human Periodontal Ligament Stem Cells to Intermittent Stretch in 2D and 3D Cultures***Diana Massai (Italy)***15:08–15:11** | Q&A**15:11–15:19** | OA199-03**Breast Cancer Fibrotic Microenvironment Architecture Controls Doxorubicin Diffusion: A Multiphysics Computational Study in an Avian Chorioallantoic Membrane Model***Alberto Bocconi (Italy)***15:19–15:22** | Q&A**15:22–15:30** | OA199-04**Elucidating Mechanical Mechanisms of Alzheimer's Disease With Human Brain Models***Xun Wang (United States)***15:30–15:33** | Q&A**15:33–15:41** | OA199-05**Numerical Simulation of Atherosclerosis Development Following the Outside-in Hypothesis***Meisam Soleimani (Germany)***15:41–15:45** | Q&A

OA200 – Tendon Biomechanics – Injury and Adaptation**14:45–15:45** | West 220**Track: Orthopaedic Biomechanics: Sports Medicine***Chair(s): John H. Challis (United States), Anja Niehoff (Germany)***14:45–14:57** | OA200-01**Personalized Prevention of Muscle-Tendon Imbalances for Tendon Injury Risk Reduction***Adamantios Arampatzis (Germany)***14:57–15:00** | Q&A**15:00–15:08** | OA200-02**Rectus Femoris Tendon as an Alternative ACL Graft: A Biomechanical Comparison with Standard Graft Configurations***Julian André (Germany)***15:08–15:11** | Q&A**15:11–15:19** | OA200-03**Unicortical Quadriceps Tendon Repair With All-Suture Anchors Results In Less Gap Formation Than Traditional Hard-Body Suture Anchors***Marcos Tejada (United States)***15:19–15:22** | Q&A**15:22–15:30** | OA200-04**Repeatability of Shear Wave Tensiometry in Tendons With and Without Pathology: A Comparison of Normalization Methods During Countermovement Jump Phases***Lucia Hockerman (United States)***15:30–15:33** | Q&A**15:33–15:41** | OA200-05**Preliminary Data Suggest that Human Tendinopathic Tendons Do Not Contain More Denatured Collagen than Healthy Controls***Margaret Capalbo (United States)***15:41–15:45** | Q&A**Closing Ceremony****16:00–16:30** | West Ballroom A

SECTION 3

POSTERS



**10th World Congress
of Biomechanics**

JULY 11 – 15, 2026 | VANCOUVER, CANADA

Posters

SUNDAY, July 12

Day 1

Exhibit Hall–West Ballroom BCD

10:00–17:00 | Posters on Display

10:30–11:30 | Presenters in Attendance

Locations are referenced as you enter the Exhibit Hall.

GREEN–Foyer Outside Entrance to Exhibit Hall

Biomechanics Education, Knowledge Translation and Outreach

Row 1 • P1-001–P1-005

Cell Biomechanics: Mechanobiology

Rows 1–4 • P1-006–P1-031

Cell Biomechanics: Methods and Models

Rows 4–5 • P1-032–P1-043

Human Motion and Performance: Balance, Posture and Control

Rows 5–9 • P1-044–P1-096

Human Motion and Performance: Locomotion/Gait

Rows 9–10 • P1-097–P1-116

RED–Right Wall

Human Motion and Performance: Locomotion/Gait

Rows 11–34 • P1-117–P1-164

BLUE–Back Wall in the Center

Human Motion and Performance: Locomotion/Gait

Rows 35–42 • P1-165–P1-244

YELLOW–Left Side by the Windows and the Product Theater

Human Motion and Performance: Locomotion/Gait

Row 43 • P1-245–P1-249

Human Motion and Performance: Sports

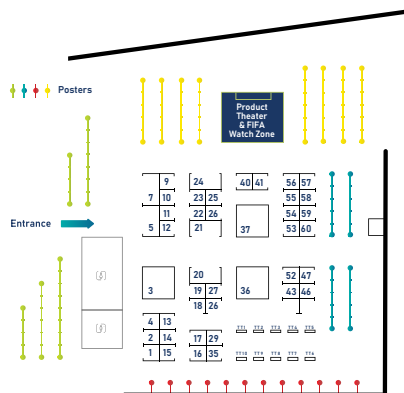
Rows 43–56 • P1-250–P1-387

Micro/Biofluidics: Experiments

Rows 56–57 • P1-388–P1-398

Micro/Biofluidics: In Silico Models and Simulation

Row 57 • P1-399–P1-403



P1-001 Evaluating Animated and Interactive Learning Tools for Strength Training Biomechanics Education

Tron Krosshaug (Norway)

P1-002 FA.RE.MO: A Non-profit Platform to FACilitate REsearch MObility in Biomechanics

Cecilia Monoli (United States)

P1-003 Integration of Quantitative Biomechanical Analysis in Non-Research Settings via an Automated Pipeline

Kaley Pagnotta (United States)

P1-004 Transferring Anatomical Models From Medicine to Engineering: Derivation of Requirement Categories for Anatomical Models Supporting the Development of Medical Devices Using the Example of the Lumbar Spine

Marisa Ritter (Germany)

P1-005 Leveraging Game-based and Blended Learning to Support Students with Heterogeneous Linguistic, Cultural, and Academic Backgrounds in a Lecture Series on Traffic Accident Biomechanics and Polytrauma Pathophysiology

Raphael Grau (Germany)

P1-006 Does Stiffness Really Matter?The Role of Substrate Stiffness in the Mechanoreponse of Dermal Fibroblasts In Vitro

Daniela Kromer (Switzerland)

P1-007 Plastin-3 Influences Chondrocytes Force Transmission in a Stiffness-Dependent Manner

Daniela Maehlich (Germany)

P1-008 Strain-Dependent Gene Expression and Remodeling by Tricuspid Valve Interstitial Cells

Devin Laurence (United States)

P1-009 Calibrating Hyper-Compliant Microparticles to Quantify Microscale Forces in 3D Tissues

Dongwon Ha (United States)

P1-010 Investigating Bone Cell Mechano-sensitivity in Breast and Prostate Cancer Patients

Eisha Hashmi (United Kingdom)

P1-011 Impact of Simulated Microgravity on Chorioretinal Cell Fate and Epithelial-to-Mesenchymal Transition

Emily Formella (United States)

P1-012 Multimodal Imaging Enables Functional Characterisation of Gene Mechanoregulation During Bone Regeneration

Francisco Correia Marques (Switzerland)

P1-013 Cholesterol Depletion Disrupts Cortical Actin Organization, Rewires Metabolism, and Overcomes Drug Resistance in Cancer Cells Within 3D Microstructured Scaffold

Giovanni Buccioli (Italy)

P1-014 Rescue of Plasma Membrane Localization of Mislocalized Pendrin Mutants by Low-Dose Lasalocid a Sodium

Goki Nagasaki (Japan)

P1-015 Vaping-Induced Injury in Human Lymphatic Endothelial Cells

Hoda Rahimi (New Zealand)

P1-016 How Curvature-Driven Cell Morphology Regulates Nuclear Lamina and Chromatin Architecture

I-CHIA LO (Taiwan)

P1-017 Experimental Characterization and Numerical Modeling of Cell–cell Adhesion in Melanoma Using Dual Micropipette Aspiration.

Ignacio Quezada-Plaza (Chile)

P1-018 Assessing the Role of Syndecan-4 in Pancreatic Ductal Adenocarcinoma Cell Chemosensitivity

Jan Jethro Baguyo (Ireland)

P1-019 Macroscopic and Microscopic Biomechanical Analysis of Scaffold-Free Bone Spheroids

Jeonghyun Kim (Japan)

P1-020 Adaptive Nuclear Displacement Dynamics Enable Cellular Responses to Small Accelerations

Jonathan Wadsworth (United States)

P1-021 Virtual framework to investigate intracellular activity in injured and inflamed articular cartilage

Joonas Kosonen (Finland)

P1-022 In Vivo Fatigue Injury Transiently Alters the Capacity of Tenocytes to Interact With Aligned and Unaligned Matrix

Joseph Denisco (United States)

P1-023 Preliminary Model of Hinge Epithelium Contraction in Palatal Shelf Elevation

Kayla Whatley (United States)

P1-024 Morphological characterization of smooth muscle cell phenotypic response to biophysical cues of the extracellular environment

Luigi Crimaldi (France)

P1-025 Integrating Mechanical and Inflammatory Cues to Predict Fibrotic Capsule Formation Around Silicone Breast Implants

Matilde Marradi (Netherlands)

P1-026 Endothelial Dysfunction Caused by Chronic Hydrostatic Pressure: Insights Into Apoptotic Regulation

Mayuna Abe (Japan)

P1-027 Biomechanical Modelling Suggests a Role of Vascular Smooth Muscle Cell Plasticity in Arterial Failure and Maladaptation

Patrick Segers (Belgium)

P1-028 Osteoporosis Treatments and Mechanical Loading Restore Osteocyte Mechanosensitivity Measured by Osteocyte Lacunar Morphology in a Mouse Model of Osteoporosis

Sara Lindenmann (Switzerland)

P1-029 Cell Mimic Platform Using Integrin-Targeted Emulsion Reveals Force-Dominated Apoptosis and Frequency-Dependent TRPV4 Activation in PANC-1 Cells

Sungkil Lee (Japan)

P1-030 Regulating Fibroblast Phenotype in Tissue Engineered Heart Valves

Willem R. Stolk (Netherlands)

P1-031 Mechanical Activation of Piezo1 Drives Osteoarthritis Through Kdm5c-Mediated Epigenetic Silencing

Zhifeng Yu (China)

P1-032 Regulatory Network Model of Axillary Lymph Node Metastasis in Breast Cancer

Alba Fischer-Carles (Spain)

P1-033 Myosin-Driven Contraction Enables Controlled Fracture in Actomyosin Networks With Measurable Mechanical Properties.

Aniket Marne (United States)

P1-034 Quantify the 3D Traction Force in Different Germ Layers of Mouse Embryo Organoids

Fuxiang Wei (China)

P1-035 Computational Determination of iPSC Stress-Fiber Architecture During Vasculogenesis

Gabriel Peery (United States)

P1-036 Estimation of Cellular Viability Under Cold Storage Using Electrical Impedance Measurement in Cell Monolayers.

Hoshito Seno (Japan)

P1-037 Mechanotransductive Control of Nucleus Pulposus Cells: A Regulatory Network Model Analysis

Jérôme Noailly (Spain)

P1-038 Mathematical Modelling of Bone Remodelling to Simulate PM2.5 Metal Effects on Bone

Joudi Altaieb (United Kingdom)

P1-039 Basal Body Bending Due to Interactions of Motile Cilia in Tetrahymena Thermophila: Computational Modeling Reproduces Observations From Nanoscale 3D Imaging

Louis Woodhams (United States)

P1-040 A Microscale Thermal Measurement for Evaluating Thermal Transport Properties Induced by Biomacromolecular Structural Transitions

Rei Nagayama (Japan)

P1-041 Stress-induced Response of 3D Bioprinted Cell Filaments Under Controlled Strain Rate

Shanshan Zhang (China)

P1-042 Receptor-Level Modelling of OPG-Modulated RANKL Gradients in a Microscale Chemokine Diffusion Platform

Svetlana Komarova (Canada)

P1-043 Directional Control of Cell Division Using Wavy PDMS Substrates for Evaluating Orientation-Dependent Responses to Tumor Treating Fields

YUEYING WU (Japan)

P1-044 How Do the Amplitudes of a Horse's Gait Affect the Three-Dimensional Kinematics of the Trunk and Pelvis During Riding in Typically Developing Children?

Aline Dalfito Gava (Brazil)

P1-045 Emergent Behaviors in Human Compensatory Stepping Following Impulsive Torso Perturbation

Arash Arami (Canada)

P1-046 Balancing for Two: Inverted Pendulum Model of Pregnancy Reveals Energy/Stability Tradeoff in Adaptation to Added Mass During Standing Balance

Autumn Routt (United States)

P1-047 Perturbation Recovery Time Detects Age-Related Changes in Balance Control of Running

Carlo von Diecken (Germany)

P1-048 A Novel Framework for Probing Inter-Limb Control in Standing Balance

Caroline Aitken (Canada)

P1-049 Stable Centre of Pressure Control Is Critical for Balance in the Handstand

Charlotte Le Mouel (France)

P1-050 Maintaining Functional Mobility: Effects of Ankle Bracing on Multi-Planar Joint Control During Landing Tasks

Clark Dickin (United States)

P1-051 Eye Drop Instillation Success Is Associated With Eye Drop Bottle Dynamics During Instillation

Daniel Duque Urrego (United States)

P1-052 Phase-Specific Characterization of Human Bimanual Coordination for Dexterous Robot Hand Manipulation Strategies

En-Lin Kuo (Taiwan)

P1-053 Frontal Plane Peak Hip Net Joint Moments Vary With Thigh Angle During Walking and Turning

Erin Kreis (United States)

P1-054 Comparative Functional Trajectory Analysis of Gait Stability Metrics Across Sensory and Mechanical Perturbations

Francis FASUYI (United States)

P1-055 Controlling for Anticipation and Triggering the Glidiator to Elicit Experimental Slips

Gaspard Diotalevi (Canada)

P1-056 Does Self-Motion Perception Predict Compensatory Stepping Responses in Healthy Adults?

Gracie Zimmer (United States)

P1-057 Stanford Balance Level Evaluation (StaBLE): Using Smartphone Videos to Assess Balance Ability

Hannah Heigold (United States)

P1-058 Footedness has a Limited Relationship With Limb Preferences and Laterality Across Movement Tasks of Varying Stability/Mobility Priorities

James Tracy (United States)

P1-059 The Effects of Hypogravity Exposure on Multisensory Integration in Posture Control

Joelle Dick (United States)

P1-060 Load Distribution and Vectorial Margin of Stability in Fundamental Karate-Do Stances: Biomechanical Insights into Postural Control

Johan Robalino (Portugal)

P1-061 When Jumping Hurts: A Systematic Review of Jump Biokinetics in Females With Patellofemoral Pain

Joshua Samaniego (United States)

P1-062 An Assessment of the Implications of Menstrual Cycle Phase on Upper Extremity Function, Lifting Risk, and Postural Control

Kaitlyn Armstrong (United States)

P1-063 Effects of Object Weight and Availability of Weight Information on Safety Margin Values During Precision Grip

Kazuki Hokari (Japan)

P1-064 Effects of Jump Induced Fatigue on Unstable Seated Balance: A Pilot Study

Kelly McGhee (United States)

P1-065 Quantifying Performance Across Different Phases of the Timed Up-and-Go Test in Individuals With and Without Cerebral Palsy

Khushboo Verma (United States)

P1-066 Differential Impacts of Mental Fatigue on Gait and Cognition in Young and Older Adults

Li-Shan Chou (United States)

P1-067 Improving Balance Accuracy: Effects of Motivation and Fear on the Base of Support

Liyi Chen (United Kingdom)

P1-068 Does Arm Posture Influence Wrist Proprioception and Hand Tracking Performance?

Melanie Altamirano (Canada)

P1-069 Neuromechanical simulations reveal how feedforward-feedback interactions shape locomotor control

Naomi Chaix-Eichel (United States)

P1-070 The Effect of Jump Distance and Jump Height Variations on Dynamic Postural Stability

Nathan Robey (United States)

P1-071 Strength, Balance, Cognition: What Works to Prevent Falls in Aging Adults*Nicole Potter (United States)***P1-072 Postural Responses to Forward and Backward Gait Initiation Tasks in Neurotypical Adults***Oluwafemi Adegbemigun (United States)***P1-073 Effects of a Hula-Based Intervention on Balance and Fall Risk in Native Hawaiian and Pacific Islander Older Adults: A Pilot Study***Patricia Young (United States)***P1-074 Investigating Stepping Error in Healthy Young Adults Across Task Difficulty and Divided Attention***Payton Reuter (United States)***P1-075 Force-Plate Calibration for Human Quiet-Standing Studies***Rika Sugimoto-Dimitrova (United States)***P1-076 Machine Learning Framework for Optimized Wearable Sensor Detection of Gait Instability***Roshan Ragu (United States)***P1-077 Assessing the Concurrent Validity and Test-Retest Reliability of Markerless Motion Capture for Static Postural Control Assessment***Sachitha Wijekoon (Canada)***P1-078 Sex- and Treatment-Specific Associations Between Emotional Factors and Peripheral and Supraspinal Postural Control in Knee Osteoarthritis***Simone Tassani (Spain)***P1-079 Comparing Effects of Control Parameters on Stability and Energy in Powered Knee Prosthesis Users During Perturbed Walking***Sixu Zhou (United States)***P1-080 The Characterization of a Step Up, Stand Still, and Step Off Balance Assessment***Sophia Chirumbolo (United States)***P1-081 Impact of Walking Speed, Perturbation Direction, and Arm Constraints on Perceived Balance Capacity and Fall Risk***Sriram Muralidhar (United States)***P1-082 Energy Cost for Force Changes Is Nonlinear and This Nonlinearity Predicts Human Forces in Legs, Arms, Fingers, and Muscles***Sriram Muralidhar (United States)*

P1-083 Does Balancing a Ball on the Back Change Spinal Movements During the Bird-Dog Exercise?

Stephen Brown (Canada)

P1-084 Participant Instructions During Research Studies: Open to Interpretation? a Case Study

Stephen Brown (Canada)

P1-085 Strategies for Successful Balance Recovery Following Trips and Slips While Walking: A Systematic Review

Sungmin Chun (Korea, Republic of)

P1-086 Joint Contributions to Whole-Body Centre of Mass Work and Muscle Coordination Patterns During Single Leg Squats

Sylvia Masse (Canada)

P1-087 Accuracy of DeepLabCut Pose Estimation Software in Extracting Whole-Body Kinematics During Falls

Teah Cribbie (Canada)

P1-088 Thoracolumbar Spinal Posture in Classical Ballet Dancers During Standing and Walking: The Flatter Lumbar Spine Does Not Persist Under Dynamic Conditions

Tempei Tominaga (Japan)

P1-089 Age-Related Changes in Lower Limb Joint Contributions During Jump Landing in Children

Thibaut Toussaint (Belgium)

P1-090 Biarticular muscle energy transfer across childhood during jump landing

Thibaut Toussaint (Belgium)

P1-091 Posture Control During Single-Leg Stance in Patients Before Lateral Ankle Ligament Reconstruction: A Preliminary Assessment

Wanyan Su (United States)

P1-092 Quantifying Sex-Specific Coordination Variability of the Inter-Segmental Center of Mass Velocity During Sidestepping

Xiaoyi Yang (New Zealand)

P1-093 Effect of Personalized Perturbation Training on Reactive Balance Skills and Perceived Balance Control in Older Adults

Ying Fang (United States)

P1-094 Novel Cyclic-Stability Dynamics for Probing Motor Adaptation in Humans

Yixin Zhang (Canada)

P1-095 Sex-Specific Patterns of Lower-Extremity Joint Stiffness Coordination Revealed Across Drop Heights during Drop Jump

Young Min Chun (United States)

P1-096 Multi-Factorial Older-Adult Turning Strategies during 180° Turns

Zahava Hirsch (United States)

P1-097 Simulated Pregnancy Weight Gain Increases Foot Arch Deformation and Abductor Hallucis Activation During Walking

Adrienne Henderson (United States)

P1-098 Joint Contributions and Muscle Coordination During Single-Leg Lateral Jumps: Hip and Knee Joint Work Modulate Performance Despite the Ankle Being the Primary Contributor

Ainsley Durnin (Canada)

P1-099 Effects of Simultaneous Asymmetric Crankarm Lengthening and Shortening During Cycling on Knee Biomechanics

Alejandro Ovispo-Martinez (United States)

P1-100 Running Volume and Stroller Use: Their Combined Effect on Injury Risk

Allison Altman-Singles (United States)

P1-101 Evaluating Feasibility of Portable Motion Capture Systems in Clinical Settings

Alyson March (United States)

P1-102 A Domain-Agnostic, Frequency-Based Method for Structuring Biomechanical Signals during Cyclic Activities

Amy Coyle (Canada)

P1-103 Co-contraction presents asymmetrically in adults walking overground

Andrew Sawers (United States)

P1-104 Decreased Rate of Force Development in Simulated Walking Increased Double Support Times

Anne Martin (United States)

P1-105 How Competing Movement Objectives Reshape Motor Coordination

Ava Lakmazaheri (United States)

P1-106 Pre- and Post-Pubertal Females Show Differences in Hip and Pelvis Kinematics During Walking

Avery Kratzer (United States)

P1-107 Split-Belt Locomotor Adaptation of Inter-Limb Kinematics and Kinetics Under Different Practice Structures

Beier Lin (Canada)

P1-108 Measuring Coordination Variability with Inertial Measurement Units Using the Velocity Ellipse Method: A Pilot Study Comparing Agreement with a Motion Capture System

Ben Jones (United Kingdom)

P1-109 The Effects of Varied Step Lengths on Hip-to-Hip and Knee-to-Knee Joint Moment Ratios in Walking Lunge Exercises

Ben Meyer (United States)

P1-110 The Effects of Varied Step Lengths on Front and Trail Leg Hip-to-Knee Joint Moment Ratios in Walking Lunge Exercises

Ben Meyer (United States)

P1-111 Robust Single-Camera Knee Flexion Estimation under Self-Occlusion via Semi-Supervised Non-Linear p-Laplacian Label Propagation

Bernard Liew (United Kingdom)

P1-112 How Is Motivation During Gait Training Influenced by Physical Assistance and Performance Feedback?

Blake Karavas (United States)

P1-113 The Effect of Running Speed and Footwear Midsole Compliance on the Biomechanics of Sub-Elite to Elite Distance Runners Wearing Advanced Footwear Technology Spikes

Bradley Needles (United States)

P1-114 Hip Moments Differ by Sex at Different Walking Speeds

Caitlyn Finnerty (United States)

P1-115 Impact of Theia3D Software Updates on Hip Kinematics and the Effectiveness of Reference Frame Realignment

Camilla Antognini (United States)

P1-116 Gait variability reveals divergent control strategies in frontal gait disorders and Parkinson's disease

Carolyn Curtze (United States)

P1-117 Step Ratio Divergence in Very Slow Walking

Carolynn Patten (United States)

P1-118 Distance-to-Attractor Gait Anomaly Detection for Continuous Monitoring of Reactive Balance: Preliminary Validation

Cecilia Monoli (United States)

P1-119 A Mechanical Device to Simulate Heel Strike and Early Stance Dynamics

Cédric Dessureault (Canada)

P1-120 Autoregressive Modeling to Evaluate Dynamic Stability During Running after Anterior Cruciate Ligament Reconstruction

Charles Eisner (United States)

P1-121 Improved Accuracy of the Center of Mass Position Through Kalman Filtering of Kinematic and Kinetic Information

Charlotte Le Mouel (France)

P1-122 A Deep Learning Pipeline to Extract Clinical Gait Metrics from Single Camera Recordings

Chris Vellucci (Canada)

P1-123 The Relationship Between Toe Flexor Strength and Positive Foot Work During Sloped Walking in Older and Younger Adults

Christopher L. Long (United States)

P1-124 Evaluation of Three-IMU-Sensor Configurations for Estimating Kinematics and Kinetics of Treadmill Running using Optimal Control

Chuyi Wang (Germany)

P1-125 Distal-to-Proximal Redistribution of Joint Work is Costly in Aging Runners

Clément Lemineur Lemineur (France)

P1-126 Sagittal-Plane Gait Differences Between Faster and Slower Marathon Runners Captured By Markerless Motion Capture at Mile 21: Faster Runners Exhibit Greater Hip Extension During Late Stance

Colin Bond (United States)

P1-127 Classifying Marathon Runners by Lower-Extremity Compression Behavior Using Markerless Motion Capture at Mile 21: Associations With Demographics, Training History, and Injury History

Colin Bond (United States)

P1-128 Lower Extremity Acceleration Asymmetries During Running in Participants With Achilles Tendinopathy: A Case Series

Dave Heller (United States)

P1-129 Foot Progression Angle Variability in Children with Cerebral Palsy

David Kingston (United States)

P1-130 Portable Ground Reaction Force Estimation Using IMU-Based Motion Capture: A Two-Tier Trust Framework

Domitille Princelle (Netherlands)

P1-131 Speed-Dependent Changes in Human Neuromotor Control Priorities During Walking

Ehsan Tahvilian (Canada)

P1-132 ISC3D: A Toolbox for Generalized 3D Transformation From Anatomical to Elevation Angles for Intersegmental Coordination Analysis

Elad Siman Tov (Israel)

P1-133 How Does Pushing a Cart Affect Spinal Curvature?

Elisa Romero Avila (Germany)

P1-134 Gait Biomechanics Phenotypes Reflecting Bilateral Interdependence in Severe Knee Osteoarthritis

Elise Laende (Canada)

P1-135 Visual Environment Complexity and Cue Congruency in Virtual Reality: Impact on Gait Parameters in Young Adults

Emily Marino (Canada)

P1-136 High Ground Reaction Forces Decrease Metatarsal Bone Strength in Runners

Emma Slavin (United States)

P1-137 Sex Differences in Collegiate Cross-Country Runners' Gait Patterns Across Different Treadmill Speeds

Eric Foch (United States)

P1-138 Lower-Limb Joint Kinetics of Turning Gait in Young Adults

Erin Kreis (United States)

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Scott Monfort (United States)

P1-357 Individualized Biomechanical Responses to Rest Duration during an Ultra-Endurance Running Event

Sean K.T. Gaiesky (Canada)

P1-358 Stopping Shots: Understanding the Relationship Between Goaltender Leg Pad Construction and Over Rotation During Common Goaltending Movements

Seth Daley (Canada)

P1-359 Effects of Non-Elastic Ankle Taping on Time-Series Muscle Activation and Joint Mechanics During Landing in Individuals With Chronic Ankle Instability

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P1-361 Shoulder or Elbow: The Better Axe-Throwing Strategy?

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Shifin A S (India)

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Sierra Hastings (United States)

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P1-365 Neurofencing—Study of the Physiology and Biomechanics of a Fencer's Movement

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Thomas Kernozek (United States)

P1-369 Mechanical Hysteresis Performance of Athletics Track Spikes

Todd Stewart (United Kingdom)

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Umar Yousufy (Canada)

P1-375 Understanding the Role of the Foot Core System in Countermovement Jump Performance

Umar Yousufy (Canada)

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Xiaomei Hu (China)

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P1-384 Validity of IMU-based Assessment of Knee Motor Control in Difference Stance Conditions using Angular Velocity Vector Analysis

Yu Kashiwagi (Japan)

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Yun-Bae Jeong (Korea, Republic of)

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Yuqi He (China)

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P1-389 Acoustic Microfluidic Confinement Elucidates the Photoshock Response of Light-Sensitive Microswimmers

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Jifeng Ren (China)

P1-391 Development of Microfluidic Devices to Generate Oxygen and pH Heterogeneity

Kenichi Funamoto (Japan)

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Kenji Kikuchi (Japan)

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Marion Semmler (Germany)

P1-394 Microfluidic-Enhanced Size-Based Cell Separation for Biomedical Applications
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Toru Hyakutake (Japan)

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Yi Li (Japan)

P1-398 Quantitative and Time-Resolved Analysis of Macrophage Responses to Fine Particles Using a Continuous-Exposure Micro-Gap Chamber
Yoshitaka Nakanishi (Japan)

P1-399 Simulation of the Swimming Behavior of Magnetic Bacteria Near the Wall in a Magnetic Field
Akihiro Kawasaki (Japan)

P1-400 Patient-specific Spectral and Temporal Analysis of Hemodynamics Modeling of Abdominal Aortic Aneurysms
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P1-401 Oxygen Transport during High-frequency Jet Ventilation using CFD with Dynamic Boundary Conditions
Margit Gföhler (Austria)

P1-402 Hemodynamic Analysis of Patient-Specific Coarctation of Aorta Model via Two-way Fluid-Structure Interaction Modeling
Victor K. Lai (United States)

P1-403 Simulation of the Swimming Behavior of Bacteria With Two Flagella Near the Wall
Yuji Shimogonya (Japan)

P1-404 Characterisation of Tumour Cell Biomechanics using High-Throughput Microfluidic Devices

Eoin McEvoy (Ireland)

P1-405 Quadratus Lumborum Asymmetry Linked to Hip Abduction Strength and Nonlinear Measures of Unilateral Postural Control

Sam Vasilounis (Canada)

Posters

MONDAY, July 13

Day 2

Exhibit Hall–West Ballroom BCD

10:00–17:00 | Posters on Display

10:30–11:30 | Poster Presenters in Attendance

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Molecular Biomechanics: N/A

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Musculoskeletal Biomechanics: Methods, Models and Applications

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RED–Right Wall

Musculoskeletal Biomechanics: Methods, Models and Applications

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Rehabilitation Biomechanics and Human Factors: Occupational Biomechanics

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Rehabilitation Biomechanics and Human Factors: Rehabilitation

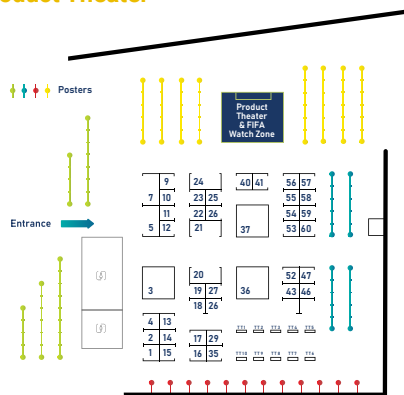
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Tissue Engineering: Mechanobiology

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Adrien A. Arias (United States)

P2-003 Enhanced Behavioral Control Precision of Paramecium and Realization of a Paramecium-Driven Autonomous Object Transport System

Akitoshi ITO (Japan)

P2-004 EMG-Informed Simulation of Bipedal Chimpanzee Walking

Aravind Sundararajan (United States)

P2-005 Mineralized Cartilage Struts Significantly Stiffen Stingray Jaw

Benjamin Flaum (Hong Kong)

P2-006 Stereotypic Behaviours Affect Thoroughbred Racehorse Gait Symmetry and Stride Time

Brittany Davis (Canada)

P2-007 Impact Analysis of the Hoof During Walking Using IMU Sensors

Christian Peham (Austria)

P2-008 How Temperature Tunes Muscle Mechanics During Active Lengthening Contractions: Implications for Muscle Models and Injury Risk

Graham Askew (United Kingdom)

P2-009 Morphological and Bioenergetic Adaptations to Environmental Temperature in Endotherms

Jason Cullum (United States)

P2-010 Development and Validation of a Custom Force Treadmill for Small Animal Biomechanics Research

Jessica Murawski (United States)

P2-011 Investigating the Role of Foot Biomechanics in Load Redistribution for Medio-Lateral Balance and Stability in Ground Birds

Junhyuck Woo (United States)

P2-012 Mechanics of Bipedal Hopping on Uneven Terrain

Mary Peña (United States)

P2-013 Kink in the Armor: The Mechanical Properties of Bony Armor in Agonidae Fishes

Megan Vandenberg (United States)

P2-014 Understanding the roles of the active and passive components within the digital flexors of the equine forelimb

Olivia Kenny (Canada)

P2-015 Subject-Specific CFD Characterisation of Craniospinal CSF Flow in Cavalier King Charles Spaniels with Chiari-Like Malformation and Syringomyelia

Ryan Jones (United Kingdom)

P2-016 Inverse Dynamics Analysis of a Dolphin Musculoskeletal Model During Swimming

Shunichi Kobayashi (Japan)

P2-017 Computational Modeling of YAP Phosphorylation Within Integrin Adhesions

Aurélie Carlier (Netherlands)

P2-018 Relation Between Perfumes Intensity and Mechanical Tension Index Influenced by Age and Gender

Emilie Khattignavong (France)

P2-019 Exploring Collagen Mechanics and Protein Interactions Across Hierarchical Scales: Insights from Fluorescence Microscopy and AFM Imaging

Janine Srocka (Canada)

P2-020 Spontaneous Clustering of LINC Complex Units Enhances Nuclear Force Transmission

Nya Domkam (United States)

P2-021 Basic Study Using Ex-Vivo Pig Ear Skin for Connective Tissue Softening via Fractional Laser

Ren Sato (Japan)

P2-022 Preliminary Quantification of Hindlimb Joint Biomechanics in a Large Animal Model of Hypophosphatasia Using a Novel Inverse Dynamics Model

Aaron Henry (United States)

P2-023 Towards Better Understanding of Trimester Specific Gait Kinematics During Pregnancy

Alyson Colpitts (Canada)

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Ameur Latreche (Canada)

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Amiya Gupta (United States)

P2-026 Linking Ankle and Hindfoot Morphology with Kinematics in Asymptomatic Flatfoot

Andrew Peterson (United States)

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Anita Borhani (Canada)

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Anja Seeger (Germany)

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Annette Chang (United States)

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Arthur Fabre (Australia)

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Asghar Rezaei (United States)

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Aubrey Gray (United States)

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Aurélien Schuster (France)

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Camille Eamon (Canada)

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Camille Eamon (Canada)

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Clare Milner (United States)

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Colin Firminger (Canada)

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Darshan S. Shah (India)

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David Ortiz-Weissberg (United States)

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Denise Balogh (Canada)

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Hannah J. Lundberg (United States)

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Hayley Janes (Canada)

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Isla R. G. MacPherson (Canada)

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Jackson Gabbard (United States)

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Jania Williams (United States)

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Jessa M. Davidson (Canada)

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Jessica Molina (United States)

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Jocelyn Hafer (United States)

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Laura Rathmair (Austria)

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Robb Colbrunn (United States)

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P2-100 The Effect of ACL Status on the in Vitro Mechanics of the Porcine Tibiofemoral Joint During Simulated Rehabilitation Exercise

Zhané Murrell-Smith (United Kingdom)

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Antony Crossman (United Kingdom)

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Axelle M. Wasiak (United States)

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Gustavo Grinspan (Uruguay)

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JOHN H Challis (United States)

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P2-350 Mechanobiology-Driven Reinforcement of Bioactive Cement for Enhanced Hard-Tissue Function and Antibacterial Performance

Lamia Singer (Germany)

P2-351 Comparison of Micro- and Macro-Mechanical Responses of α - and β -Phase 3D-Printed Titanium Alloys for Biomedical Applications

Petr Bočan (Czechia)

P2-352 Degradation-Induced Changes in Mechanical Properties of Resorbable Implant Materials.

Steffen Braun (Germany)

P2-353 Effect of Manufacturing Process on the Mechanical Performance of Resorbable Implant Materials in Simulated Biological Environments

Steffen Braun (Germany)

P2-354 Guidance of Cell and Matrix Morphology in Fiber/Hydrogel Composite Scaffold

Takumi Asakawa (Taiwan)

P2-355 Evaluating Decellularisation-Induced Microstructural Changes in Porcine Tendon via Raman Spectroscopy, Second Harmonic Generation and Scanning Electron Microscopy

Victoria Haines (United Kingdom)

P2-356 Image-guided Microstructural Mechanical Evaluation and Quantification of Cartilage Under In Situ Compression

Xi Chen (Australia)

P2-357 In Vitro Culture Model Mimicking Mechanical Environment of Spontaneous Pneumothorax to Elucidate Frictional Force-Induced Cellular Response

Yu Akiyama (Japan)

P2-358 Modeling Solute Transport and Clearance in Synovial Joints: Implications for Predicting Cartilage Penetration of Injectable Therapeutics in Preclinical and Clinical Models

Aiyana Fortin (United States)

P2-359 Laser-Templated Microvascular Construction With Predefined Geometries via Flow Stimulation and Initial Cell Introduction Control

Akira Ono (Japan)

P2-360 A Confined Dynamic Compression Framework for Characterizing Melt Electrowritten-PVA Composite Scaffolds for Articular Cartilage Repair

Alessio Amicone (Switzerland)

P2-361 A Multi-Modal Bioreactor System Designed for Characterising Chondrogenic Effects of Dynamic Mechanical Stimulation in Cartilage Tissue Engineering

Cecily X. Chen (Australia)

P2-362 Advancing Articular Cartilage Regeneration: A Multiscale Scaffold Approach And Physical Characterisation

Elisa Bissacco (Switzerland)

P2-363 Investigating the Mechanical Efficiency of Genipin Crosslinking on Demineralized Cancellous Bone Scaffolds for Articular Cartilage Repair

Eric Nauman (United States)

P2-364 Development of Articular Cartilage Model Considering Fiber Orientation Using Particle Method*Fuyu Mima (Japan)***P2-365 A Thermodynamic Framework for Coupled Electromechanical Bone Remodeling, Damage, and Healing***Ibrahim Goda (France)***P2-366 Development of Two-Photon Biofabricated Tissue-Engineered Vascular Graft***Jacqueline L. Avila (United States)***P2-367 Optimization of a Custom-Designed Perfusion Bioreactor for Human Bone Tissue Culture***Johannes Eichwalder (Canada)***P2-368 EFFECT OF Porosity Gradients on the Mechanical Performance of SLA 3D-Printed TPMS Scaffolds***José Contreras (Chile)***P2-369 Investigation of the Protective Effect by Pressurized Dissolution of Argon Gas Under Cold Storage of Monolayer Cells***Kenshi Mimura (Japan)***P2-370 Novel Nested Transwell for Developing Lung Immuno-Organoids***Lara Herlah (Canada)***P2-371 Biocompatibility Assessment of 3D Printed Hydroxyapatite/Polycaprolactone Composites for Intra-oral Bone Regeneration***Margaryta Ivanets (Belgium)***P2-372 Engineering Reproducible Vessel-Like Constructs: Optimizing FRESH Bioprinting and Mechanical Characterization of Alginate–Gelatin Hydrogels***Michele Conti (Italy)***P2-373 Impedance as a Novel Diagnostic Measure of Vascular Health and Disease***Pranav Shrotriya (United States)***P2-374 Construction of Vascularized Three-Dimensional Hepatocyte Tissues Using Microfluidic Devices***Ryo Sudo (Japan)***P2-375 Cellular Particles as Modular Building Blocks for Vascular Network Formation***Seiji Omata (Japan)***P2-376 Multilevel Characterization of Osteocyte Lacunar Microarchitecture in Healthy, Osteoporotic, and Post–COVID-19 Human Trabecular Bone***Seyedeh Fahimeh Hosseini (Italy)*

P2-377 Characterizing ZIF-8 Degradation and Surface Topographies in Fibrous Scaffolds*Shu-Hsuan Chang (Taiwan)***P2-378 Biocompatibility of a Technical-Grade SLA Resin: Mechanical and Biological Evaluation of 3D print samples for Tissue Engineering***Vincenzo Marchese (Chile)***P2-379 Mechanical and biological evaluation of functionally graded TPMS porous structures fabricated via SLA 3D printing***Vincenzo Marchese (Chile)***P2-380 Regional Control for Monolithic Enthesis Engineering***Wen-Xuan Chen (Taiwan)***P2-381 Small Molecule Therapies to Rescue Gap Junctional Intercellular Communication to Overcome Stiffness-Induced Chemoresistance***Eoin McEvoy (Ireland)*

Posters

TUESDAY, July 14

Day 3

Exhibit Hall–West Ballroom BCD

10:00–17:00 | Posters on Display

10:30–11:30 | Poster Presenters in Attendance

Locations are referenced as you enter the Exhibit Hall.

GREEN—Foyer Outside Entrance to Exhibit Hall

Emerging Areas: N/A

Rows 1–6 • P3-001–P3-064

Injury Biomechanics: N/A

Rows 6–10 • P3-065–P3-116

RED—Right Wall

Injury Biomechanics: N/A

Rows 11–26 • P3-117–P3-147

Organ and Tissue Biomechanics: N/A

Rows 26–34 • P3-148–P3-164

BLUE—Back Wall in the Center

Organ and Tissue Biomechanics: N/A

Rows 35–38 • P3-165–P3-197

Orthopaedic Biomechanics: Lower Extremities

Rows 38–42 • P3-198–P3-244

YELLOW—Left Side by the Windows and the Product Theater

Orthopaedic Biomechanics: Lower Extremities

Rows 43–46 • P3-245–P3-277

Orthopaedic Biomechanics: Spine

Rows 46–49 • P3-278–P3-311

Orthopaedic Biomechanics: Sports Medicine

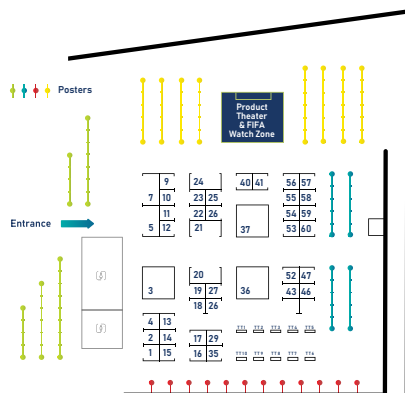
Rows 49–51 • P3-312–P3-326

Orthopaedic Biomechanics: Trauma and Repair

Rows 51–53 • P3-327–P3-351

Orthopaedic Biomechanics: Upper Extremities

Rows 53–56 • P3-352–P3-385



P3-001 Use of Kinematic Variables for Missing Value Imputation of Athlete Rating of Perceived Exertion With Machine Learning Strategies

Amarah Epp-Stobbe (Canada)

P3-002 Multimodal Prediction of Treatment Success in Degenerative Spondylolisthesis: Integrating Deep Learning–Derived Imaging Features and Clinical Data

Andrea Cina (Switzerland)

P3-003 Offset vision in virtual reality alters limb symmetry during a bilateral task

Andy Karduna (United States)

P3-004 Does a High Fat Sucrose Diet Affect the Forelimb Muscle Integrity in Rats with Diverse Inherent Aerobic Capacity?

Barbod Shiri (Canada)

P3-005 Toward Human-Like Motion in Musculoskeletal Simulation: Generative Adversarial Imitation from Observation (GAIfo)

Chihyeong Lee (Korea, Republic of)

P3-006 Machine Learning–based Assessment of Triceps Muscle Fatigue Using Mechanomyographic Signals

Coralie Privet-Thieulin (France)

P3-007 Prediction of Human Cortical Bone Work-of-Fracture Based on Bone Collagen Denaturation and Machine Learning

Corin Seelemann (Canada)

P3-008 Uncertainty-Aware Cardiovascular Flow Reconstruction Using a Latent Diffusion Model

Dana Lynn Lavacot (United States)

P3-009 Mapping the Age-Related Constriction of Gait Strategies via Semi-Supervised Deep Learning

Diana C. Martinez (Colombia)

P3-010 Deep Learning Enables Prediction of Bilateral Joint Kinetics of Walking in Young and Older Adults Before, During, and After Functional Electrical Stimulation of Plantar Flexors

Dylan M. Page (United States)

P3-011 AutoSSM: Nonlinear Statistical Shape Modelling via a Variational Autoencoding Framework

Edwin Tay (Netherlands)

P3-012 Performance Assessment of Machine Learning Algorithms for Hop Classification and Functional Profiling of 1,878 Hop Tests

Eleonora Cabai (Italy)

P3-013 Building the Foundations for AI-Based Diagnostic Models of Human Movement Using Real-World Video

Ellie Thompson (Canada)

P3-014 A Principled Validation Framework for Explainable AI in Gait Analysis: Sensitivity, Faithfulness, and Cross-Method Coherence

Elodie Drew (Canada)

P3-015 Advancing Real-Time and Automated Inertial Sensor Analysis Across Biomechanics Applications with Time-Series Transformers

Gerard Aristizábal Pla (United States)

P3-016 Reliability assessment of a neural network-based ecological framework for remote gait analysis in Parkinson's Disease

Giulio Rigoni (Italy)

P3-017 Neural Network With Cross-Domain Knowledge Transfer From Force Plates to Wearable Insoles for the Estimation of 3D Ground Reaction Force components.

Gloria Scanagatta (Belgium)

P3-018 MoveDB: Toward a Scalable Biomechanics Database Platform for Reproducible Research

Hudson Burke (United States)

P3-019 Improving Energy Expenditure Estimation From a Single Wrist IMU by Learning Musculoskeletal Joint Kinematics

Ilias Masmoudi (Germany)

P3-020 Assessing the Performance of Deep Learning 3D Reconstruction Models of the Pelvis from Bi-Planar X-Rays using Spinopelvic Parameters

Isabella Tierney (Canada)

P3-021 Kinematics-Based Technique Clustering of Freestyle Swimmers

Itay Coifman (Israel)

P3-022 Development of a Data Warehouse System for Storage, Analysis, and Downstream Applied Research with Multimodal Biomechanics and Injury Assessment Datasets Using Open Source Tools—Architecture and Proof of Concept

Jason Luck (United States)

P3-023 Determinants of thoracic aorta shape: a statistical analysis on a healthy subset of the UK Biobank

Jellis Bollens (Belgium)

P3-024 Towards a Single-Camera Markerless Approach to Quantify Upper-Limb Kinematics in Children with Cerebral Palsy

Jingwen Hu (Ireland)

P3-025 Prediction of Skin Growth and Deformation in Tissue Expansion using Neural Ordinary Differential Equations

Joel Laudo (United States)

P3-026 Unsupervised Clustering of Temporal-Spatial Biomechanics Identifying Functional Phenotypes Independent of Anthropometric Constraints

Julia Wilk (Poland)

P3-027 AI-Assisted Preoperative Osteosynthesis Planning for Complex Fractures

Julian N. Zierke (Germany)

P3-028 Promoting Efficient and Robust Exploration in Predictive Musculoskeletal Simulation by Decoupling Control and Exploration Spaces

Jun Hyuk Lee (Korea, Republic of)

P3-029 A Pilot Study on Utilization of a Conditional Generative Adversarial Network to Predict Wall Stress in Abdominal Aortic Aneurysm

Katherine Kerr (United States)

P3-030 Dynamic Finite Element Analysis of Breast Motion under Bra Support: Effects of Internal Structure and Bra Type

Kohei Murase (Japan)

P3-031 Temperature-Controlled Centrifuge Force Microscope for Exploring DNA-Protein Interactions

Koushik Bar (Canada)

P3-032 Accurate Estimation of Articular Hip Loading in Hip Osteoarthritis From a Physics-Informed Smart Garment

Laura Diamond (Australia)

P3-033 Generative Ai and Synchrotron Imaging Uncover a Connectivity-Controlled Mechanical Regime in Bone

Laura Vergani (Italy)

P3-034 Feasibility of Extracting Spatio-Temporal Gait Parameters from Foot-Mounted Inertial Sensors in Hereditary Spastic Paraplegia

Lauro Ojeda (United States)

P3-035 Roadmap for building the Virtual Human Twin

Liesbet Geris (Belgium)

P3-036 Towards Individualized Bone Conduction Hearing Models: A Benchmark Comparison With the State-of-the-Art Model

Linus Taenzer (Switzerland)

P3-037 Remote Running Gait Analysis Using Smartphone Video and Monocular Pose Estimation: A Feasibility Study

Luke VanKeersbilck (United States)

P3-038 Transtibial Limb Loss Reduces Metabolic Cost of Walking When Loosely Constrained to Track Able-Bodied Gait: A Simulation Study

Maliheh Fakhar (United States)

P3-039 CNN-Based Deep Learning for Multi-Region Classification and Prediction of Cobb Angles from Markerless 3D Surface Topography in Adolescent Idiopathic Scoliosis

Mariam Ezzat (Canada)

P3-040 Three-dimensional Reconstruction of the Pelvis from Simulated Bi-Planar X-Rays using Deep Learning

Marie De Mey (Canada)

P3-041 Auto-Classification of Manual Wheelchair Propulsion Stroke Patterns in Children with Spinal Cord Injury Using Machine Learning

Marko Vucelic (United States)

P3-042 Performance of OpenCap from Non-Recommended Viewpoints

Maya Ansu-Kyeremeh (Canada)

P3-043 Effects of Altered Depth Perception on Gait in Virtual Reality Walking Tasks

Michael Thorne (United States)

P3-044 Shunt Hemodynamics Abnormalities In sublingual Microcirculation as Indication for Sepsis

Monika Colombo (Denmark)

P3-045 Automatic CT Image Quality Analysis for Selection of Optimal Phase in Large Machine Learning Datasets

Monika Colombo (Denmark)

P3-046 Comparing Feature Sets for Motion Prediction Model Training

Nick Fey (United States)

P3-047 3D Human Pose Estimation of Golf Swings using Multimodal Deep Learning Models

Nishad Rajmalwar (Canada)

P3-048 Deep Learning Ensemble Architectures for OCT-Based Diabetic Retinal Health Monitoring

Pedro Reboło (Portugal)

P3-049 Integrating Near-Infrared Spectroscopy, Support Vector Machines, and Fibril-Reinforced Poroelastic Finite Element Modeling for Constituent-Specific Human Cartilage Characterization

Petri Tanska (Finland)

P3-050 Direct Regression of Kinematics, Keypoints, and Identity for Monocular and Multiview Video

R. James Cotton (United States)

P3-051 AI-Powered Real-Time Pose Estimation Linked with Biomechanical Simulation for Personalized Squat Injury Prevention

Sabine Bauer (Germany)

P3-052 Evaluating the Impact of Camera Motion on Knee Angle Accuracy using World-Grounded Human Motion Recovery (GVHMR)

Sarah Dumont (Canada)

P3-053 Development of Automated Coronal Plane Alignment of the Knee Classifier Using Machine Learning With Digitally Reconstructed Radiograph

Satoru Ikebe (Japan)

P3-054 Observer Network: Validating Human Motor Control Policies via Q-network Knowledge Distillation

Seungju Mok (Korea, Republic of)

P3-055 Sex-Hormone and Adipose Tissue Amounts Impact Magnitude of Breast Tissue Acceleration

Stacey Gorniak (United States)

P3-056 A Data-Driven Approach to Optical Motion Capture Gap-Filling

Stewart McLachlin (Canada)

P3-057 Accuracy of AI-Based Multimodal Models in Automatically Detecting Falls in Older Adult from Video Footage

Teah Cribbie (Canada)

P3-058 GO Viz: An Open-Source Application for the Visualization of Gene Ontology Enrichment Analysis Across Multiple Comparisons

Trevor Lujan (United States)

P3-059 Cognitive Load and Knee Motion While Driving in Teens After Anterior Cruciate Ligament Reconstruction Surgery

Valentina Graci (United States)

P3-060 Sensitivity of Markerless 3D Reconstruction to Different Simulated Video Acquisition Scenarios

Vanessa Yelós Tellagorry (Uruguay)

P3-061 Heel Strike Detection using IMU-Based Multi-Scale Temporal Convolutional Network

Ying Fang (United States)

P3-062 Quantitative-Feature Analyses of Fear of Falling Through Artificial Intelligence Methods

Zhanxin Sha (United States)

P3-063 Delineating the Role of Right Ventricular Viscosity and Elasticity in Organ Performance Using a Lumped Parameter Multiscale Computational Model

Zhijie Wang (United States)

P3-064 Identifying Fragile X Syndrome Biomarkers: a Supervised Machine Learning approach based on Gait Analysis data

Zimi Sawacha (Italy)

P3-065 Stress Wave Induced High Shear Strain and Shear Strain Rates as a Potential Mechanism to Explain Blast Traumatic Brain Injury.

Aashutosh Kulakarni Prachet (United States)

P3-066 A MRI-Safe, Pneumatic Rotation Device to Measure Large Brain Deformations using Tagged MRI

Ahmed Alshareef (United States)

P3-067 Periodic Activation Functions for Identifying Injured Movement

Alex Dzewaltowski (United States)

P3-068 Development of Posture-Validated HBMs for Reclined Seating Use Cases

Alex Kalmar-Gonzalo (United States)

P3-069 Investigating the Relationship Between Kinematic Brain Injury Metrics and Brain Tissue Strain for a Football Helmet Test Standard

Alex Sanchez (Canada)

P3-070 The Effect of Trochanteric Soft Tissue Thickness on Hip Protector Efficacy during Simulated Lateral Falls: Assessing Impact Force Attenuation using a Hybrid Cadaveric Soft Tissue-Surrogate Pelvis Testing System

Andrew Laing (Canada)

P3-071 Mapping External Garment Pressure to Internal Vascular Loads: A Modular Rig Coupled with 3D-1D Hemodynamic Modelling

Angelo Karunaratne (United Kingdom)

P3-072 Evaluation of a Device for Mitigation of Neck Muscle Fatigue in Fighter Pilots

Anita Vasavada (United States)

P3-073 Timing and Dominant Components of Peak Linear and Angular Head Accelerations in Low-Speed Rear End Collisions: A Study of Human Responses
Richard Watson (United States)

P3-074 Mesh Convergence Depends on Element Formulation for Finite Element Brain Models
Azilis Even (Sweden)

P3-075 Effects of Cues to Walk Softly and Quietly on Gait Mechanics During Load Carriage
Caleb Johnson (United States)

P3-076 Recovery of the lumbar intervertebral disc revealed by coupled mechanical testing and high-contrast soft tissue cryogenic microCT
Cameron Bass (United States)

P3-077 Validation of a Sex-Specific Finite Element Head Model, Automotive Reconstructions and Female Soccer Head Impact Data
Carlos Cardoso (Portugal)

P3-078 Experimental Reconstruction of Head Impact Loading in Real-World Forensic Injury Scenarios
Chad Gooyers (Canada)

P3-079 Head Kinematics and Pathology in a Large Animal Model of Non-Penetrating Head Impact
Charlie Magarey (Australia)

P3-080 The effect of size on the male hand and forearm injury tolerance when subjected to loading representative of behind-shield blunt trauma
Cheryl Quenneville (Canada)

P3-081 Increased Age, Head on Collisions and Facial Impact Location Influence Head Injury in 353 RAIDS Motorcyclists in 2013-2025 Road Accident In-Depth Studies Data
Claire Baker (United Kingdom)

P3-082 Pathology and Head Kinematics in a Large Animal Model of Closed Head Trauma With and Without Head Impact
Claire Jones (Australia)

P3-083 Characterizing Head Acceleration Events in Stock Car Auto Racing by Kinematic-Derived Principal Direction of Force (PDOF)
Cole Smith (United States)

P3-084 Comparison of Positive and Negative Mold Scanning Techniques for the Assessment of Back Face Deformation in Armor
Cristian Pampu (United States)

P3-085 Quantifying Seated Pregnant Occupant Anthropometry Using a 3D LiDAR Scanner*Danielle Rowlands (Canada)***P3-086 Unexpected Source of Behind Armor Blunt Trauma (BABT) Lung Injury***Derek Pang (United States)***P3-087 Acoustic Source Localization of Fractures in Heterogenous Biological Tissue***Diana D. Tarakhovsky (United States)***P3-088 Head Impact Kinematics in Reconstructed Youth Body-First Rear Falls***Emilie Ethier (Canada)***P3-089 Evaluation of Female Head X-Acceleration Responses Between Volunteers and Anthropomorphic Test Devices in Frontal and Frontal-Oblique Sled Tests***Emily Arana Barcala (United States)***P3-090 Electromyographic Activity in Frontal and Rear End Sled Tests and Activities of Daily Living***Emily Arana Barcala (United States)***P3-091 Slopes, Spirals, and Splashes: Rider Biomechanics on Three Common Recreational Water Slides and Rides***Emily Bliven (United States)***P3-092 Plantar Pressure while Running in Advanced Footwear Technology: Implications for Navicular Stress Fracture Risk***Gayatheri Mahesh Hema Iyer (United States)***P3-093 Can Wearable-Sensor Errors Confound the Mechanics Responsible for Concussion Injury?***Gunter Siegmund (United States)***P3-094 Head Injury Risk in Low-Height Falls: Comparative Analysis Using THUMS Human FE Model and Hybrid III Dummy Experiments***HAEYOUNG KIM (Japan)***P3-095 Design and Additive Manufacturing of Tunable Triply Periodic Minimal Surface (TPMS) Lattices to Enhance the Biomechanical Impact Protection of Hip Protectors***Haoming MO (Hong Kong)***P3-096 Effect of a Rapid Transition From Concentric to Eccentric Contraction on Fiber Strain in the Rectus Femoris***Hayata Egawa (Japan)***P3-097 Multi-Dimensional Joint Angle Analysis for Pitching Fatigue Detection: A Skeleton Detection and Deep Learning Approach***Hung-Chun Huang (Taiwan)*

P3-098 Punch-Type-Dependent Effect of Neck Muscle Strength on Brain Injury Risk in Boxing*Igor Komnik (Germany)***P3-099 ACL Injury Resilience Score Differs Between Preadolescent and Adolescent Female Athletes***Jack Williams (United States)***P3-100 Predicting Cumulative Head Acceleration Exposure Using Video-Derived Metrics in Professional Rugby League***James Tooby (United Kingdom)***P3-101 Adaptive Flyband® ExoBoot Improves Proximal Joint Mechanics Without Restricting Ankle Function***Jania Williams (United States)***P3-102 Head Impact Exposure Device Validation Through Variation in System Coupling***Jason Luck (United States)***P3-103 A Regularized Framework for Accelerometer-Only Determination of Rigid-Body Motion, With Applications in Mild Traumatic Brain Injury***Jeetika Patangia (United States)***P3-104 Relationships Between Applied Force and Selected Anthropometric Measures on Hand-Arm Vibration Transmissibility During Hand-Held Power Tool Use***Jeffrey Lim (Canada)***P3-105 Modeling How the Neck Constrains Head Motion in Contact Sport Impacts: Sex and Directional Differences***Jessica Toone (Canada)***P3-106 Multi-directional volunteer fall experiments during bus braking maneuvers***Jia-Cheng Xu (Sweden)***P3-107 Comparison of Cervical Spine Compression, Tension, and Shear Forces in Low Speed Rear-End Collisions***Jordan Ogbu Felix (United States)***P3-108 THUMS AM50 Upper Extremity Response to Ballistic Shield Loading in Comparison to Experimental Data***Julia de Lange (Canada)***P3-109 Effectiveness of Restraint Use in Reducing Lower-Extremity Injury Severity During High-Speed Frontal Collisions: A Case Study Utilizing MADYMO***Kari Verner (United States)*

P3-110 Development of a Subject-Specific MADYMO Model Predictive of Tibial Plateau Fractures in a High-Speed Frontal Collision Case Study

Kari Verner (United States)

P3-111 Calculating Low Back Moments of Personal Support Workers using Bottom-up Models Driven by Smart Insoles Versus Top-down Models Driven by Estimated Hand Forces

Kate M. Posluszny (Canada)

P3-112 Investigation of Cushion Type for Mitigating Lumbar Spine Loads caused by Under Body Blasts

Katerena Sirhan (United States)

P3-113 Voxel-Wise 3D Multiparameter Hyperelastic Tissue Characterization Through Combining Physics-Informed UNet and Optimal Input Loading Dataset Design

Kaveh Laksari (United States)

P3-114 Raman Microscopy Identification of Overstretch-Induced Collagen Damage in Cerebral Arteries

Kenneth Monson (United States)

P3-115 Can Machine Learning Discriminate Between Injured and Uninjured Service Members Using Single Leg Squats?

Krista G. Clark (United States)

P3-116 Pure Shear Loading in the Cervical Spine: Replicating Injurious Boundary Conditions

Luis Dias (Canada)

P3-117 Sensitivity of Disc Herniation Risk to Variations in Occupant Posture and Seat Positioning During Rear End Collisions

Luis Nolasco (United States)

P3-118 Comparison of Gelatins as Surrogates for Backface Deformation Analysis of Soft Armor

Madeleine Tarter (United States)

P3-119 Concussion Detection in Multiple Men's and Women's Contact Sports Using Instrumented Mouthguards

Mathias LE MAIGAT (France)

P3-120 Differences in Lower Extremity Posture between Male and Female Drivers

Matthew Reed (United States)

P3-121 Towards a Biofidelic Test for Evaluating Equestrian Helmet Performance During Crush Scenarios

Megan Barnes-Wood (United Kingdom)

P3-122 Head Acceleration Exposure Incidence and Severity in University-Level Female Rugby Players

Megan Barnes-Wood (United Kingdom)

P3-123 Examining Plantar Pressure and Tibial Acceleration Patterns to Identify Biomechanical Variations Associated With Patellofemoral Pain—a Pilot Study

Megan Gordon (United States)

P3-124 Musculoskeletal Injuries in American Ballroom Dancers—A Survey-based Study

Meredith Wells (United States)

P3-125 Airbags for Neck Protection: A Computational Analysis of Head-First Motorcycle Crash Dynamics

Mohammad Nasim (Bangladesh)

P3-126 Head Impact Kinematics in Male U17A Box Lacrosse and U16AA Ice Hockey: A Comparative Pilot Study Using Instrumented Mouthguards

Nicholas Deaver (Canada)

P3-127 Detecting Functional Spinal Stenosis Using Cerebrospinal Fluid Dynamics: A Pre-Clinical Study in the Pig

Nikoo Soltan (Australia)

P3-128 Contextualizing Head Accelerations During Rear-End Collisions: A Pilot Study

Patrick Fischer (United States)

P3-129 Application of Machine Learning Methods to Investigate Joint Load in Agility on the Soccer Field

Pietro Margheriti (Italy)

P3-130 Helmet Protective Performance in High Velocity Oblique Impacts for Electric Bicycle Riders

Qi Huang (Sweden)

P3-131 A Multimodal Measurement Approach for Analyzing and Characterizing Shaking Dynamics in Shaken Baby Syndrome Using Optical Motion Tracking, Accelerometers, and Force-Sensing Films with Offender-Profile-Aligned Participant Sampling

Raphael Grau (Germany)

P3-132 Estimated Ankle Ligament Strains During Roundhouse Kicks at Different Heights

Renee Alexander (United States)

P3-133 Biomechanical Effects of a NiTiNOL Staple and Buttress Plating in Pauwels III Femoral Neck Fractures: A Cadaveric Comparison with Cannulated Screws

Rita Aoun (United States)

P3-134 BIPED mk2 Finite Element Model Pressure Sensitivity in a Helmeted Impact Protocol

Robert Chauvet (Canada)

P3-135 Design of 3D-Printed Biomimetic Porous Architectures for Head-Protective Materials

Satoshi Yamada (Japan)

P3-136 Comparison of football helmet performance with and without Guardian Cap

Sean Bucherl (United States)

P3-137 Injury Responses of an Undulated Male Axon in Dynamic Stretch Loading

Songbai Ji (United States)

P3-138 Effect of Center of Mass Height on Hip Impact Forces During Simulated Sideways Falls from Standing Height

Soyeon Yoon (Korea, Republic of)

P3-139 Sex Impacts Resultant and Cumulative Tibial Bending during a Walk, Jog, and Run

Thomas Wenzel (United States)

P3-140 Finite Element Analysis of Force Transmission in Behind Armor Blunt Trauma Across Different Backing Materials

Tony Hatzegeorgiou (United States)

P3-141 The Passenger Inside: How Posture Influences Uterine Geometry and Lumbar Curvature During Pregnancy

Vivian Chung (Canada)

P3-142 Investigating Soft Tissue Contributions to Thoracic Responses with a Whole Human Body Model

Wei Zeng (United States)

P3-143 Preliminary Analysis of Spatial Position and Observed Airway Risks in a Bedsharing Environment

Yafa Benavidez (United States)

P3-144 Head Protection Performance of 3D-Printed Biomimetic Porous Architecture Using Child Head Impactor Drop Analysis

YUELIN ZHANG (Japan)

P3-146 Comparison of Impact Loads during Simulated Falls of 3D-Printed versus Plaster Wrist Casts

Zhenhao Yang (Canada)

P3-147 Constructing Characteristic Signals of Head Acceleration Events in Stock Car Racing

Zoie Mink (United States)

P3-148 Fluid Dynamics and Diffusion Study of an Open-Source 3D-Printable Bioreactor and Mechanical Loading System for Ex Vivo Bone Culture

Alejandra Correa-Belloso (Canada)

P3-149 Fiber Rearrangement Redistributes Energy and Modulates Intrinsic Cutting Energy in Bovine Glisson's Capsule

Amy WagonerJohnson (United States)

P3-150 Improving Tissue Deformation Tracking in Blood Vessel Burst Pressure Tests

Ana Estrada (United States)

P3-151 Subject-Specific Characterization of the Trochanteric Soft Tissues Improves Impact Force Predictions during Lateral Falls on the Hip: A Comparison of Non-Destructive Inverse Finite Element Modelling and Shear Wave Elastography Approaches

Andrew Laing (Canada)

P3-152 Parameters Affecting Shear Modulus and Shear Wave Speed in Pressurized Biological Tissues

Ariana Cihan (Belgium)

P3-153 Evaluating Stiffness and Volume Changes in Pressurized Ex Vivo Kidneys With Ultrasound and Magnetic Resonance Imaging

Ariana Cihan (Belgium)

P3-154 Averaging Material Parameters in Hyperelastic Models: Impact of Polynomial vs Exponential Forms

Arya Amiri (Canada)

P3-155 Musculoskeletal-finite element modeling of knee joint mechanoinflammation and cartilage adaptation

Atte Eskelinen (Finland)

P3-156 Biomechanical and Structural Characterisation of Perineal Tissues Across Multiple Scales

Beatrice Bisighini (France)

P3-157 Variations in the Contribution of Fluid Pressurization to Compressive Muscle Stiffness from Local to Global Indentation

Benjamin Wheatley (United States)

P3-158 Characterizing the Cyclic Viscoelastic Response of Human Penile Tissues for Improved Inflatable Penile Prosthesis Applications

Caitríona (Tríona) Lally (Ireland)

P3-159 A Virtual-Fields-Based Metric to Assess Elastography Data Quality for Anisotropic Inversion

Callan Luetkemeyer (United States)

P3-160 Biophysics-informed Computational Platform of Shear Wave Elastography for Assessing Cervical Remodeling

Camilo Duarte-Cordon (United States)

P3-161 Vascularisation Dynamics in Endometriotic Lesions: A Mathematical Model of Angiogenic Factors and Blood Flow

Cécilia Olivesi (New Zealand)

P3-162 Regionally Varying Biomechanical and Structural Remodeling of the Murine Colon in an Acute Model of Inflammatory Bowel Disease

Chastity Chavez (United States)

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Ecem Kilic (United States)

P3-361 Biomechanical Performance Assessment of Anatomical Scapula Body Fracture Fixation Plates—A Comparative Finite Element Analysis

Habtamu Yimam (South Africa)

P3-362 Influence of Cup Positioning of Dual Mobility Thumb Carpometacarpal Joint Replacement on Principal Stress Projection in Trapezium

Hind Alyahya (United Kingdom)

P3-363 Stiffness of Thumb Carpometacarpal Joint: an In-vivo Study

Hind Alyahya (United Kingdom)

P3-364 Biomechanical Rationale and Functional Impact of the External Rotation Torsional Humeral Osteotomy on Shoulder Kinematics in Older Children With Obstetric Brachial Plexus Palsy

Jagdish Menon (India)

P3-365 Comparison of Upper Extremity Anthropometry among Manual Wheelchair Users using Marker-Based and Markerless Biomechanical Models and Radiographic Imaging Segmentation

Jeremy Lohmann (United States)

P3-366 Determinants of Supraspinatus Occupation Ratio During the Bench Press: The Role of Shoulder Elevation Kinematics and Sex

Jodi Motlagh (United States)

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Johannes Eichwalder (Canada)

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Julia Dunn (United States)

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Kaitlyn B. Kuchinka (Canada)

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Lea-Marie Ocker (Germany)

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Lidya Canturk (United States)

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Lu Yen (Taiwan)

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Mahdi Mohseni (United Kingdom)

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Marcos Amstalden Barros (United States)

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Mateus Enzenberg (Austria)

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Maxence Lavaill (Australia)

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Pollyanna Crane (United States)

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Vitor La Banca (Brazil)

P3-384 Fascicle-Level Adaptation in SLAP Lesion Surgical Repairs

Wendy Murray (United States)

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Woonhoe Goo (Korea, Republic of)

Posters

WEDNESDAY, July 15

Day 4

Exhibit Hall–West Ballroom BCD

10:00–13:30 | Posters on Display

10:30–11:30 | Poster Presenters in Attendance

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Cardiovascular/Cardiorespiratory Biomechanics: Methods, Models and Applications

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Cardiovascular/Cardiorespiratory Biomechanics: Methods, Models and Applications

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Clinical Biomechanics: N/A

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Clinical Biomechanics: N/A

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Clinical Biomechanics: N/A

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Artificial Organs, Devices

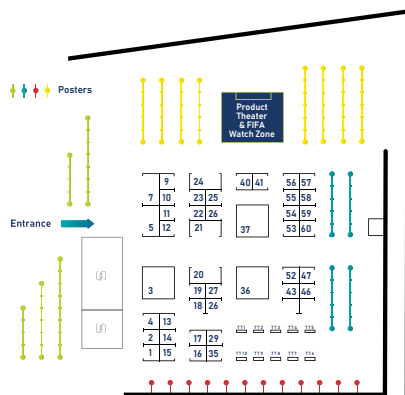
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Imaging and Biomedical Devices:
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Imaging and Biomedical Devices:
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P4-013 Reduced order model for fully coupled 3D Fluid Structure Interaction of transvalvular flow affected by Aortic valve stenosis

Akshita Sahni (United States)

P4-014 Structural and Fluid Mechanics Analysis of Renal Artery Stenting–Effect of Stent Placement and Respiratory-Induced Motion

Alberto Aliseda (United States)

P4-015 Modeling the Effects of Right Ventricular Remodeling on Intramural Stress and Cardiac Outflow in Pulmonary Arterial Hypertension

Alex Barr (United States)

P4-016 In-Vivo Comparison between Computational Fluid Dynamics Simulations and Xenon MRI of the Upper Airways in Obstructive Sleep Apnea

Alister Bates (United States)

P4-017 Modeling Respiratory Mechanics in Neonatal Lung Disease: MRI–CFD Framework for Regional Work of Breathing Analysis

Alister Bates (United States)

P4-018 Accelerated finite element analysis of patient-specific atherosclerotic coronary arteries using a locally refined structured-mesh-based surrogate meshing approach.

Amear Mohammed (United Kingdom)

P4-019 Impact of Reference State on Estimates of Passive Myocardial Stiffness in Hypertensive Patients

Amirhossein Manzouri (New Zealand)

P4-020 Inverse Identification of mitral valve leaflet properties and chordal forces using a Physics-Informed Neural Network (PINN)

Anling Zhu (United States)

P4-021 Blood pressure modulation during heart-paced walking is explained by vertical body acceleration

Aurora Rosato (Sweden)

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Bao Li (China)

P4-023 Real-Time Prediction of Stent Deployment for Brain Aneurysms Treatment Using Statistical Shape Modelling and Finite-Element-Based Surrogate Modelling

Beatrice Bisighini (France)

P4-024 High Speed Acute Cardiac Infarct Simulations using High Fidelity Heart Data and the Neural Network Finite Element Approach

Benjamin Thomas (United States)

P4-025 In Vivo Deformation of the Human Single Ventricle*Benjamin Thomas (United States)***P4-026 Equivalent Stress-to-Strength Ratio for Assessing Rupture Risk of Abdominal Aortic Aneurysms***Chanhee An (Korea, Republic of)***P4-027 Predicting Postoperative Cerebral Perfusion in Chronic Internal Carotid Artery Stenosis Through Patient-Specific Inference of Leptomeningeal Anastomoses***Chi Hang To (Japan)***P4-029 Novel Method to Quantify Tracheal Work of Breathing During Exercise Using MRI-Derived CFD***Christopher Boles (United States)***P4-030 Changes in Heart Rate and Heart Rate Variability Pre, During, and Post a 6-Minute Walk Test in Older Adults based on Physical Activity Level***Chyenne Neath (Canada)***P4-031 Cerebral Collateral Development Alters Circle of Willis Hemodynamics and Forces Experienced by the Occlusive Clot During Acute Ischemic Stroke—A Computational Fluid Dynamics Study***Cody Kubicki (United States)***P4-032 Controlled Intramural Fluid Injection Reveals Biomechanical Drivers of Thoracic Aortic Dissection***Cristina Cavinato (France)***P4-033 Fractional Viscoelastic Modeling for the Heart and Arteries***David Nordsletten (United States)***P4-034 RT3DE-Derived Finite Element Analysis of Functional Tricuspid Regurgitation and RV Free Wall Approximation***Davide Tondi (Italy)***P4-035 Assessing Potential Adjunct Medications such as Hydroxocobalamin and Methylene Blue, with REBOA, in the Management of Hemorrhage in a Large Animal (Sus scrofa) Model of Polytrauma***Dena Norouzi (United States)***P4-036 4D CT-Based automated quantification of RVOT 3D geometry and strain field to support TPVI planning***Emiliano Votta (Italy)***P4-037 Personalized Computational Fluid Dynamics Simulations of Transarterial Embolization for Liver Cancer Treatment Planning***Enrico Sangiorgio (Italy)*

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Erica Schwarz (United States)

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Federica Fontana (Netherlands)

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Felix Plappert (United States)

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Francesco Sturla (Italy)

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Gaku Tanaka (Japan)

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Ione Ianniruberto (Italy)

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James Thunes (Canada)

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J  r  me Noailly (Spain)

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Jessie Duquesne (Belgium)

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Kaat Wille (Belgium)

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Kila Bein Snee (Ireland)

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Lise Fontalirant (France)

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Amir Isazadeh (Canada)

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Anncristin Andres (Germany)

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Avocet Nagle-Christensen (United States)

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Avocet Nagle-Christensen (United States)

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Aya Nakamura (Japan)

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Brandon Peoples (United States)

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Breanna Morales (United States)

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**10th World Congress
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JULY 11 – 15, 2026 | VANCOUVER, CANADA

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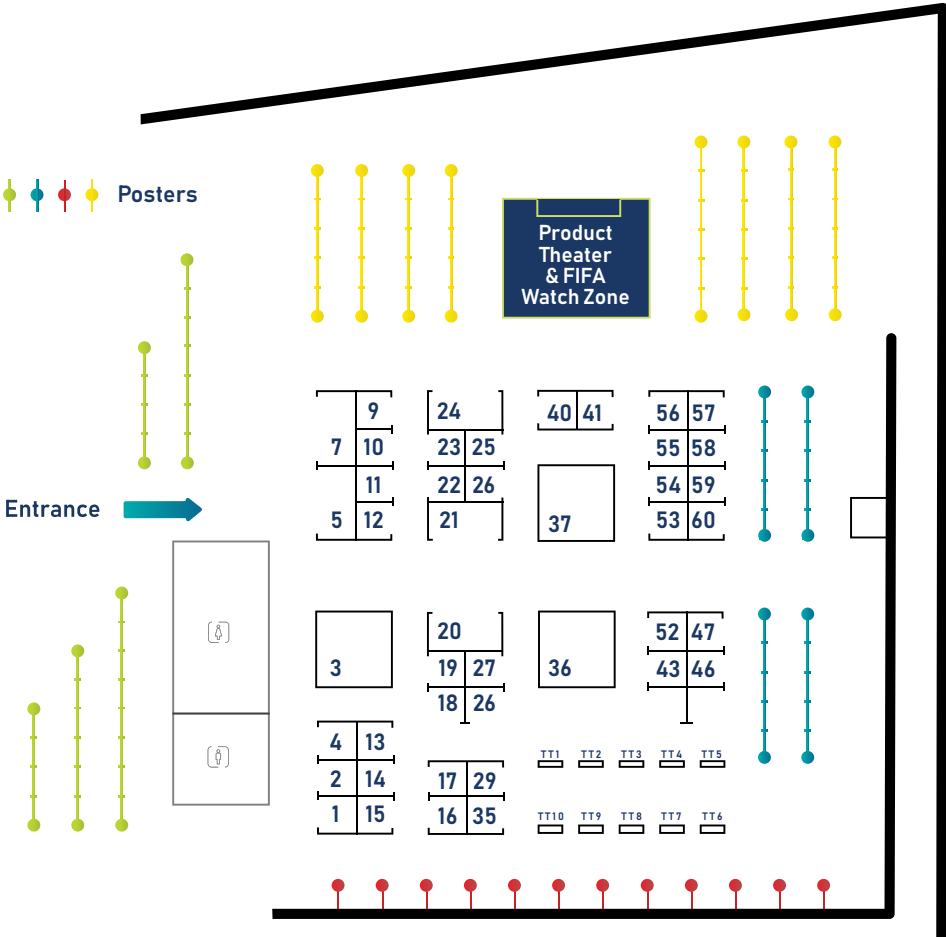
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Exhibit Hall Floor Plan



Exhibitor Listing

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