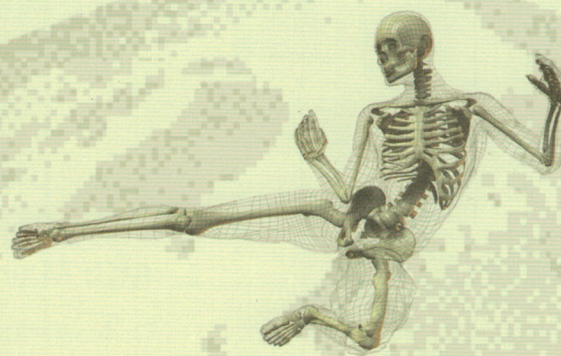


International Society of Biomechanics

XXth meeting

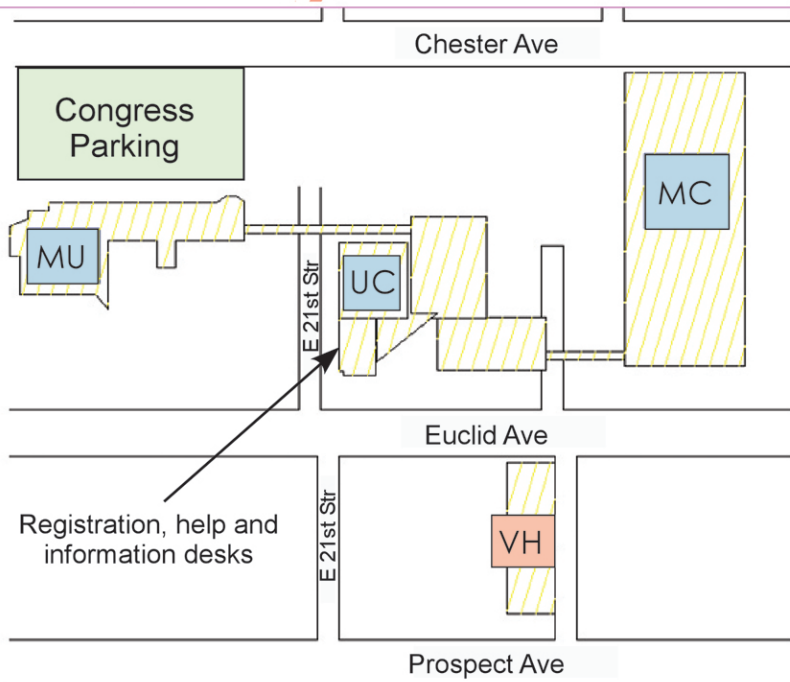
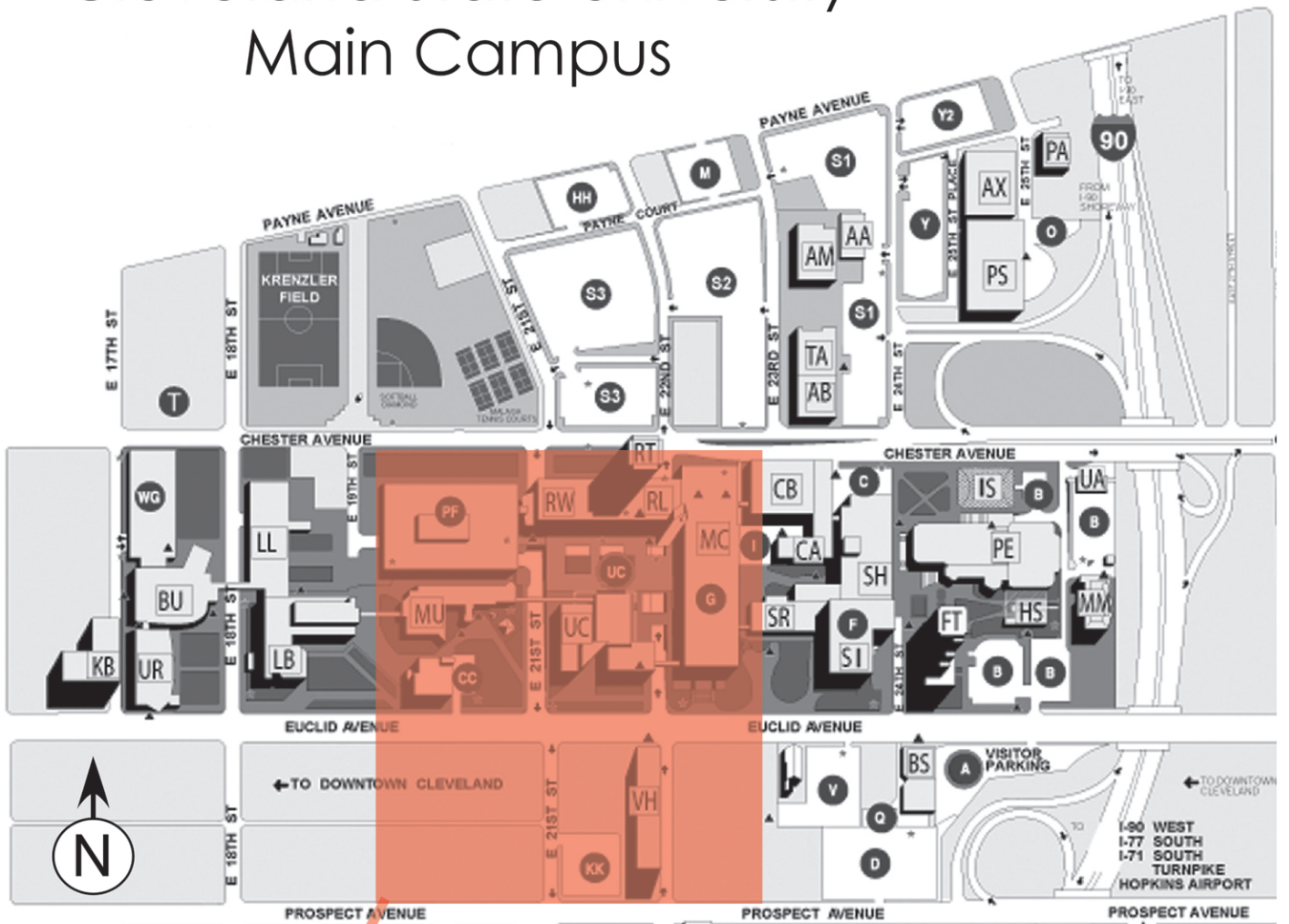
American Society of Biomechanics

29th meeting



July 31st - August 5th
Cleveland State University

Cleveland State University Main Campus



- MU: Music and Communication Building
Waetjen Auditorium
- UC: University Center
- MC: Main Classroom
- VH: Viking Hall (campus accommodation)



Welcome



**XXth Congress of the International Society of Biomechanics
and
29th Annual Meeting of the American Society of Biomechanics**

We are delighted to welcome you to Cleveland, Ohio, for a combined meeting of the International and American Societies of Biomechanics. The last time the ISB held its congress in the USA was in 1989, in Los Angeles, California. In the intervening 15 years, researchers in biomechanics have continued to make significant breakthroughs in a variety of fields including the understanding and treatment of musculoskeletal disorders, preventing workplace injuries and optimizing athletic performance at the elite levels. New medical imaging technologies, microsensors, and computer algorithms add to these breakthroughs on a daily basis. The work of our two societies is in the forefront of advancement of the discipline of biomechanics, in both its academic and applied arenas. Such advancement is especially significant as we progress through what the World Health Organization has designated "The Bone and Joint Decade." From July 31st through August 5th, 2005, we look forward to meeting colleagues many of whom last gathered in Dunedin in 2003 and to making new acquaintances that will spur collaborations. The underlying emphasis of the Congress this year is to create a program that encourages student participation, with a great variety of educational offerings in all aspects of biomechanics. We have two main objectives for the 2005 meeting: (i) to present an academic program of the highest quality, and (ii) to have a rich social program that will complement the scientific meetings and allow new and old friends to experience all that Cleveland has to offer.

We are confident you will find the meeting to be an outstanding congress that does credit to both ISB and ASB.

Peter R. Cavanagh, Ph.D., D.Sc.
Virginia Lois Kennedy Chairman of
Biomedical Engineering
The Cleveland Clinic Foundation

Patrick E. Crago, Ph.D.
Allen H. and Constance T. Ford Professor and
Chairman of Biomedical Engineering
Case Western Reserve University

Organization

Organizing Committee

Brian Davis (Co-Chair)

Ton van den Bogert (Co-Chair)

Peter Cavanagh	William Jirousek
Patrick Crago	Robert Kirsch
George Chatzimavroudis	Melissa Knothe Tate
Susan D'Andrea	Scott McLean
Todd Doehring	Katie Root
A. Seth Greenwald	Paul Sung
Elizabeth Hardin	Ronald Triolo
John Jeziorowski	Guang Yue

Host Institutions

The Cleveland Clinic Foundation

Department of Biomedical Engineering
Orthopaedic Research Center

Case Western Reserve University

Department of Biomedical Engineering
Department of Mechanical Engineering

Louis Stokes Cleveland VA Medical Center

Motion Studies Laboratory

Cleveland State University

Department of Health Sciences
Department of Chemical and Biomedical Engineering

Lutheran Hospital

Orthopaedic Biomechanics Laboratories

ISB and ASB Information

ISB Council Members

Mary Rodgers
Sandra Onley
Brian Davis
Julie Steele
Maarten Bobbert
Ewald Hennig
Senshi Fukushima
Mark Grabiner
Robert Gregor
Walter Herzog
Jill McNitt-Gray
Joseph Hamill
Alex Stacoff
Karen Sogaard
Graeme Wood
Motoshi Kaya

ASB Council Members

J.J. Trey Crisco
Walter Herzog
Ted Gross
Don Anderson
Art Kuo
Irene Davis
Julianne Abendroth-Smith
Steve McCaw
Kathy Simpson
Andrew Karduna
Melissa Scott-Pandorf

ISB General Assembly

The International Society of Biomechanics will hold its General Assembly on Wednesday, August 3rd at 12.00 p.m. in Waetjen Auditorium.

ASB General Assembly

The American Society of Biomechanics will also hold its General Assembly during the Congress. Details will be announced.

ISB Desk

The ISB desk is located in the University Center Atrium (see Map, inside cover). ISB membership questions can be answered throughout the Congress.

General Information

Congress Venue

The Welcome Reception and Scientific program will be held at Cleveland State University Main Campus, from Sunday July 31st through Friday August 5th. Lunches and refreshments will also be provided, Monday through Friday at the congress site. Detailed maps of the congress venue and more information on the scientific and social programs can be found within this booklet. Volunteers will be available on-site throughout through the entire congress to assist you with any queries or concerns. Keep an eye out for the people in the green polo shirts with the congress logo.

Registration Desk

The conference registration desk is located in the University Center Atrium and will be open on Sunday between 8.30 AM and 6.00 PM, and during the remainder of the congress. Please check in at this desk to pick up congress materials or if you have any registration related queries.

Exhibitors

A number of national and international companies will be on hand to exhibit their latest products. All exhibitors will be located in the University Center (Atrium, basement and 2nd Floor), from Sunday 8:30 AM to Wednesday 1:00 PM. See the map on page 9 for details. Please stop by during the conference to see what is the latest and greatest in biomechanics.

Information and Message Service

A congress message board will be provided next to the registration desk. All congress participants are invited to use this board at their convenience.

Banks and ATM's

There three Automatic Teller Machines located on Cleveland State University Main Campus. Each of these is open 24 hours and will take major bank and credit cards. There is also a major bank (Huntington National Bank, 917 Euclid Ave) Bank within walking distance (0.66 miles) from the Congress Center, which is open Monday to Friday between 9.00 a.m. and 4.00 p.m. if you should require additional assistance. Both Bank and ATM locations are included on the Accommodations map for your convenience (page 8).

Internet Cafe

A free internet café will be available throughout the conference, located in the University Center, adjacent to the Atrium. The Cleveland State University is also a wireless network hub for those bringing their own laptops. Please use the following login information to access the CSU computing network (Login: isbasb, Password: csuguest).

Congress Badges

Delegates and accompanying persons are required to wear their official congress identification badges for entrance to all congress activities including the social events and functions.

Fitness Facilities

Access will be provided to Cleveland State University Weight Room and Running Track facilities between 4:00 – 8:00 PM, on Monday, Tuesday and Wednesday. If you are interested in using these facilities, please contact the registration desk for more details.

Safety

As with most large cities, Cleveland has its share of do’s and don’ts in terms of keeping safe. We also realize that part of the Congress experience is about exploring what the host city has to offer. To assist you in this process, free transportation will be provided to various destinations on Wednesday afternoon. We strongly encourage you to take advantage of this offer during your stay, both for ease of access and safety reasons. Additional shuttles may be added at other times throughout the conference. Please ask for an update at the information desk. If at any time you require immediate assistance, please contact Cleveland State University Conference Services (216-523-7203) or if it is an emergency, Campus Security (216-687-2020).



Social Program

Sunday, July 31 st	Welcome reception on CSU Campus
Tuesday, August 2 st	Open House at Cleveland Museum of Natural History
Wednesday, August 3 nd	Tours and excursions
Thursday, August 4 th	Baseball: Cleveland Indians and New York Yankees
Friday, August 5 th	Banquet at Rock and Roll Hall of Fame

Opening Ceremony

The Organizing Committee welcomes you to Cleveland and the XXth ISB Congress and 29th Annual Meeting of the ASB for what promises to be a fantastic scientific and social event. Festivities begin with the Opening Ceremony at 3:00 PM on Sunday July 31st, held in the Waetjen Auditorium (MU Building), followed by the Wartenweiler Memorial Lecture at 4:00 PM. The order of events is listed below.

Music: Students from the Cleveland Institute of Music

Welcomes

Mary Rodgers – ISB President

Trey Crisco – ASB President

Ton van den Bogert – Cleveland Organizing Committee

This is Cleveland (Video)

Mark Tumeo – Vice Provost for Research and Dean, College of Graduate Studies

Patrick Crago – Chairman of Biomedical Engineering, CASE

Opening Address: From Marey to Mars – through Ohio

Peter Cavanagh, Chairman of Biomedical Engineering, The Cleveland Clinic

Music: Students from the Cleveland Institute of Music

Introduction to the Wartenweiler Lecture

Benno Nigg, University of Calgary

Wartenweiler Lecture: Bruce Latimer, Director, The Cleveland Museum of Natural History. *Biomechanics and Evolution*

Music: Students from the Cleveland Institute of Music

Welcome Reception

The welcome reception and barbecue will follow the opening ceremony and Wartenweiler Memorial lecture, beginning at 5:00 PM in the area outside the UC building, and will provide an excellent opportunity to meet and socialize with friends and colleagues.

Open House Reception

After the poster session on Tuesday, hop on a trolley at CSU and join your colleagues for an evening at The Cleveland Museum of Natural History in University Circle (6:30 – 10_30 PM). Highlights include planetarium shows, a Late Jurassic sauropod skeleton with a 6-foot, 4-inch femur, a cast of “Lucy’s” originally discovered skeletal materials and her reconstruction; her genuine remains were returned. Also, see live animals native to North America and a Foucault pendulum. Since this is an “Open House”, you can come and go throughout the evening as you please. Trolley shuttles will leave approximately every 20 minutes from CSU for the museum and return you to CSU. This event is free for all registrants and includes food, drinks, exhibits and planetarium shows. If you are still hungry after the reception, you can venture over to Little Italy for a continental dinner. The last trolley back to CSU will depart from the museum at 10:30 p.m.

Wednesday Afternoon Activities

A number of organized (paying) tours are set for the free afternoon on Wednesday. In addition, there will be free transport for the “Cleveland Exploration Excursion”, which incorporates tours of local landmarks and museums, as well as the Orthopaedic Biomechanics Laboratories at Lutheran Hospital, VA Motion Studies Laboratory, Case Western Reserve University Campus, and the Cleveland Clinic Foundation Department of Biomedical Engineering.

Baseball

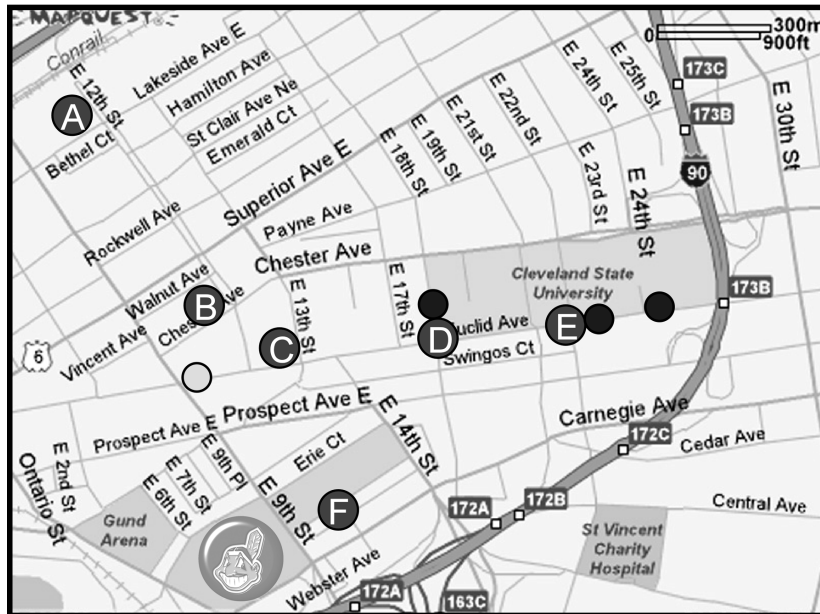
Join us on Thursday evening at Jacob’s Field to watch our beloved Cleveland Indians take on the New York Yankees. See Newton’s laws of physics in action at this truly amazing sporting extravaganza. Of course, if you would prefer, Shakespeare is also playing at Playhouse Square.

Banquet

The Congress will conclude with a gala banquet on Friday August 5 from 7.00 p.m. until 10.00 p.m. at the Rock & Roll Hall of Fame on Lake Erie. Trolley shuttles will again take you too and from the Banquet.

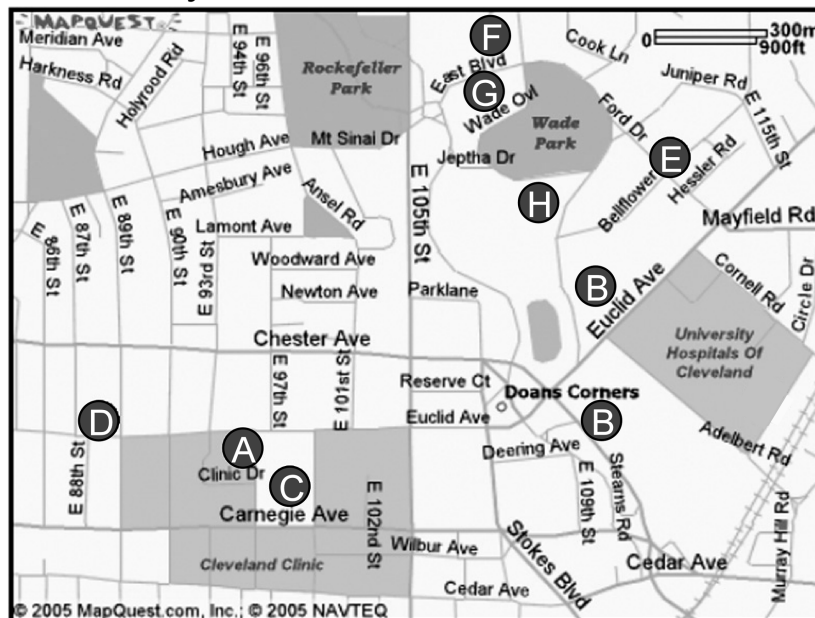
Accommodations and Places of Interest

Downtown

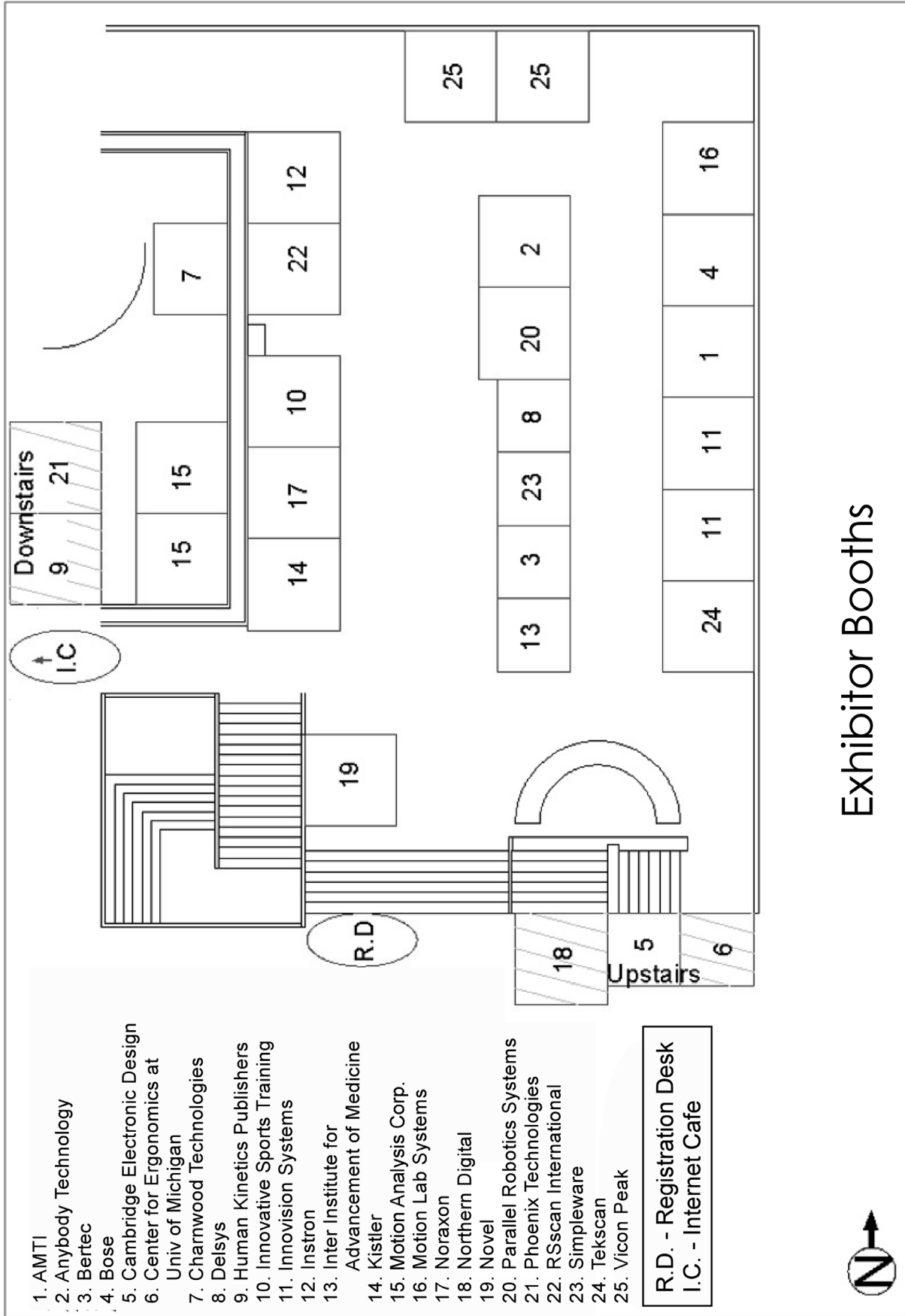


- A. Holiday Inn Select
- B. Embassy Suites Hotel
- C. Wyndham Playhouse Square
- D. Comfort Inn Downtown
- E. Viking Hall (CSU)
- F. Hilton Garden Inn
- Huntington National Bank
- Automatic Teller Machines
- ⚾ Baseball

University Circle



- A. Cleveland Clinic Foundation
- B. Case Western Reserve Univ.
- C. Intercontinental Hotel
- D. Intercontinental Suites
- E. Glidden House
- F. VA Medical Center
- G. Cleveland Museum of Natural History
- H. Cleveland Museum of Art



Exhibitor Booths

Presentations

Podium Presentations

Each podium presentation will be limited to ten minutes, allowing five minutes for questions and discussion. Presenters have the option of using their own laptop, or using the computer provided in each room throughout the congress. Those using the latter must have their presentation in PowerPoint format, and saved either on CD, Compact Flash Card, or Memory (USB) Stick. You must go to the speaker ready room (UC - Kiva, near UC1 and UC6) at least 24 hours prior to your presentation. Our Audio-visual (AV) staff will make a copy of your presentation, make sure it works, and install it on the computer in your presentation room. At this time, you should make sure that all fonts appear as expected and that all sound/video clips are working correctly. AV staff will assist you and answer any questions that you may have. If you plan on using your own computer, you must still visit the speaker ready room at least 24 hours prior to your session to test the connection and to inform AV staff that you have arrived. If during your presentation any video files remain black, try switching the laptop from "screen + projector" to "projector only". There will be speaker timers in each of the presentation rooms. Speakers will be shown a green warning light at nine minutes and a red light at ten minutes.

Chairpersons of Podium Presentations

Please arrive in the presentation room 15 minutes before the session in order to introduce yourself to the presenters and AV staff. At the beginning of each presentation please introduce the presenter, their affiliation and title of the presentation. Please ensure that each presentation begins and ends on time so that participants wishing to hear preceding and following talks in other rooms can do so. There will be speaker timers in each presentation room, which will be controlled by the chairpersons. If you have any problems, please contact the AV staff member in your room immediately. In rare cases where the presenter does not show, please take a break for that 15 minute time period rather than move on to the next speaker. This will again ensure no-one misses talks of personal interest.

Poster Presentations

The Tuesday and Thursday poster sessions will be held in rooms UC201 and UC201 and UC Atrium respectively. People with odd numbered posters will be required to stand at their poster from 3:45 PM – 4:45 PM. Those with even numbered posters will need to be at their board for the next hour (4:45 PM – 5:45 PM). For the Tuesday session, presenters should have their posters up by no later than Monday 2 p.m., and should be taken down by 9.00 a.m. Wednesday. For the Thursday session, posters should be up no later than Thursday 9.00 a.m., and should be removed by Friday 6:00 PM. Any posters that are not removed by the required time will be disposed of.

Awards

During the Cleveland-ISB/ASB-2005 Congress, a number of scientific awards will be presented to recognize outstanding scientific contribution in the field of biomechanics. These awards and the respective winners/finalists are listed below.

ISB Awards

Muybridge Award

Winner: Rik Huiskes, Eindhoven University of Technology, The Netherlands
Presentation: Wednesday, August 3, 11:00 AM, Waetjen Auditorium
Sponsor: ViconPeak

Clinical Biomechanics Award

Winner: Magnus Kjartan Gislason, University of Strathclyde, UK
Presentation: Wednesday, August 3, 9:00 AM, Waetjen Auditorium
Sponsor: *Clinical Biomechanics*, Elsevier Science Ltd.

Young Investigator Award (Podium Presentation)

Finalists: Ann Barkowitz, Jill Higginson, Emma Johnson, Craig McGowan,
and Thomas Withrow
Presentation: Wednesday, August 3, 9:30 AM, Waetjen Auditorium
Sponsor: Elsevier Science Ltd.

Young Investigator Award (Poster Presentation)

Finalists: Jingzhi Liu, Alena Grabowski, David Suprak, Sicco Bus, Yasushi
Enomoto, Elizabeth Chumanov, Steven Blackburn, Sarah Kruger, Veronica
Santos, Smita Rao
Presentation: Poster sessions on Tuesday and Thursday

Promising Young Scientist Award

2003 Winner: Constantinos Maganaris, Manchester Metropolitan Univ, UK
Presentation: Wednesday, August 3, 8:30 AM, Waetjen Auditorium
2005 Winner: Kermit Davis, University of Cincinnati, USA
Sponsor: ViconPeak

ASB Awards

Borelli Award

Winner: Kai-Nan An, Mayo Clinic, Rochester, Minnesota
Presentation: Thursday, August 4, 1:15 PM, Waetjen Auditorium

Jim Hay Award for Sports Biomechanics

Winner: Mont Hubbard, University of California, Davis
Presentation Time: Thursday, August 4, 8:30 AM, Waetjen Auditorium

Predoctoral Young Scientist Award

Winner: Katherine Holzbaur, Stanford University, California
Presentation: Thursday, August 4, 9:30 AM, Waetjen Auditorium

Postdoctoral Young Scientist Award

Winner: Stefan Duma, Virginia Polytechnic and State University
Presentation: Thursday, August 4, 9:45 AM, Waetjen Auditorium

Microstrain Award

Winner: Azita Tajaddini, Cleveland Clinic Foundation, Ohio
Presentation: Thursday, August 4, 2:15 PM, Waetjen Auditorium
Sponsor: Microstrain

Clinical Biomechanics Award

Finalists: Wendy Murray and Robert Siston
Presentation: Thursday, August 4, 2:30 PM, Waetjen Auditorium
Sponsor: *Clinical Biomechanics*, Elsevier Science Ltd.

Journal of Biomechanics Award

Finalists: Joseph Crisco and Eun-Jeong Lee
Presentation: Thursday, August 4, 3:00 PM, Waetjen Auditorium
Sponsor: *Journal of Biomechanics*, Elsevier Science Ltd.

Other Awards

NAC-Miyashita Award for best paper from east Asia:

Sponsor: NAC Inc.
To be announced at congress

Delsys Recognition for EMG Innovation

Sponsor: Delsys, Inc.
To be announced at congress

Tutorials

ISB tutorial lectures will be held on Sunday July 31st in the MC building and are limited to registered participants only. Each tutorial requires a separate registration fee of \$30. Lunch will be provided for all registered participants between the morning and afternoon tutorial sessions. A list of tutorial sessions is provided below.

Time	Presenter	Title	Room
9:30 AM – 11:30 AM	Mark Latash	Motor Control: The Equilibrium-Point Hypothesis and Internal Models	MC201
9:30 AM – 11:30 AM	Rik Huiskes	Bone and Osteoporosis: Computational Diagnostics	MC202
12:30 PM – 2:30 PM	Richard Baker	3-D Analysis of Movement	MC201
12:30 PM – 2:30 PM	Jeff Weiss	Soft Tissue Mechanics	MC202

Workshops

Two technical workshops will also be held during the congress, which you are welcome to attend. You are required to register for each workshop prior to commencement, but registration is free in each case. For the Novel workshop, you can register online via the congress home page (<http://www.isb2005.org>). You can register for the Tekscan workshop via their web site (<http://www.tekscan.com/medical/meetings.html>). Each workshop will present state-of-the-art technologies in pressure distribution measurement and analysis. Workshop sessions will be held at the following times.

Date	Start Time	Session	Room
Monday August 1 st	5:30 PM	Novel Workshop	MC201
Monday August 1 st	2:00 PM	Tekscan Workshop	UC364

Scientific Program

Sunday, July 31

4:00 PM

Wartenweiler Memorial Lecture

Waetjen Auditorium

Chair: Benno M. Nigg

4:00	Bruce Latimer	Biomechanics and Evolution
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Monday, August 1

8:30 AM

Keynote Lecture

Waetjen Auditorium

Chair: Karen Søgaard

8:30	Don Chaffin	Biomechanical Analysis of Occupational High Exertion Tasks
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Monday, August 1

9:30 AM

Ergonomics 1

Waetjen Auditorium

Chair: Don Chaffin, Krystyna Gielo-Perczak

9:30	Kermit Davis	Are There Inherent Differences in How Males and Females Respond to Lifting?
9:45	Allan Wrigley	Principal Component Analysis Of Lifting Waveforms
10:00	Mohammad Abdoli-Eramaki	Impact Of Lift Assistive Device On Lumbar Compressive Force
10:15	Jaap van Dieen	No Single Lifting Technique Minimizes Low Back Load

Locomotion 1

UC 6

Chair: Art Kuo, Rick Neptune

9:30	Max Kurz	Does Gravity Influence The Structure Of Chaotic Gait Patterns?
9:45	At Hof	Lateral Balance In A/K Amputees And Healthy Controls
10:00	Veerle Segers	Differential Effect Of M. Tibialis Anterior Fatigue On Walk-To-Run And Run-To-Walk Transition Speed In Unsteady State Locomotion Conditions
10:15	Jonathan Dingwell	Tracking Slow-Time-Scale Changes In Movement Coordination

Soft Tissue 1

MC 201

Chair: Kathe Derwin, Ahmet Erdemir

9:30	Kozaburo Hayashi	Effects Of Stress Deprivation On Biomechanical Properties Of Regenerated And Residual Tissues In The Patellar Tendon After Removal Of The Central One-Third
9:45	Naveen Chandrashekar	Effects Of Sex And Mass Density On The Mechanical Properties Of The Human Patellar Tendon
10:00	Kirsten Legerlotz	The Influence Of Different Mechanical Stimuli And Growth On The Mechanical Properties Of The Achilles Tendon In The Female Rat
10:15	Sarah Calve	The Influence Of Aging On The Material Properties Of Tendon

Space Biomechanics

MC 202

Chair: Azita Tajaddini, Brian Davis

9:30	Samantha M. Lane	A Dual Track Actuated Treadmill In A Virtual Reality Environment As A Countermeasure For Neurovestibular Adaptations In Microgravity
9:45	Marcus Just	Modeling And Simulation Of Reaction Forces In A Reduced Gravity Exercise System
10:00	John DeWitt	The Effect Of Speed On Ground Reaction Forces During Locomotion In Weightlessness
10:15	Peter Cavanagh	Treadmill Exercise On The International Space Station: The Effects Of External Loading

Bone 1

UC 1

Chair: Serkan Inceoglu, Robert Mensforth

9:30	Dean Lang	Quantitative Trait Loci Influencing Bone Quality In Young And Old Mice
9:45	Michael Bottlang	Strain Field Acquisition On Ovine Fracture Callus With Electronic Speckle Pattern Interferometry
10:00	Luisa Moreno	The Rule Of Creep In The Sex Differences Of Long Bone Resistance To Fatigue Failure
10:15	Jessica Goetz	Three Dimensional Multiscale Reconstruction Of Emu Femoral Head Osteonecrosis: From Cell To Organ Level

Monday, August 1

11:00 AM

Ergonomics 2

Waetjen Auditorium

Chair: Karen Søgaard, Cecile Smeesters

11:00	Scott MacKinnon	Effects Of Reach Distance Upon Electromyographical Activities Of Selected Upper Body Musculature
11:15	Karen Søgaard	Single Motor Unit Activity In The Trapezius Muscles Of Elderly Female Computer Users With And Without Neck-Shoulder Pain During Computer Work
11:30	Nadine Dunk	Gender-Based Postural Responses To Seated Exposures
11:45	Peter Keir	Prediction Of Forearm Muscle Activity During Gripping
12:00	Kathleen Shyhalla	Effects Of Repetitive Work On Discomfort And Performance During Composite Tasks
12:15	Anne Moore	The Effect Of Forearm Support On EMG Activity Of The Upper Extremities During Computer Work: A Chair Intervention Study

Locomotion 2

UC 6

Chair: At Hof, Frank Buczek

11:00	Andrea Lay	Backward Upslope Walking: Implications For The Knee Joint
11:15	Gordon Robertson	Kinetic Analysis Of Gait Initiation
11:30	Frank Buczek	Telescoping Action Improves The Fidelity Of An Inverted Pendulum Model In Normal Human Gait
11:45	Vassilios G. Vardaxis	3D Upper Body Acceleration Magnitude For Self-Selected And Fast Walking Speeds In Young And Older Able-Bodied Adults
12:00	Hartmut Geyer	The Spring-Mass Model For Walking
12:15	Shawn O'Connor	Optimization Of Feedforward And Feedback Control During Walking

Soft Tissue 2

MC 201

Chair: Ivan Vesely, Todd Doehring

11:00	Raffaella De Vita	A Stochastic Model For Ligament Mechanical Failure
11:15	Feng Shen	Rheological Behaviour And Modeling Of Brain Tissue
11:30	Brent Mitchell	Non-Linear Elastic Behavior Of Small Intestinal Submucosa
11:45	Murat Surucu	Micromechanical Modeling Of Nonlinear Viscoelastic Behavior Of Mitral Valve Chordae
12:00	Costin Untaroiu	Identification Of Viscoelastic Properties Of Human Medial Collateral Ligament Using Finite Element Optimization
12:15	John Wu	Estimation Of Viscous Properties Of Skin And Subcutaneous Tissues Via Uniaxial Stress Relaxation Tests

Foot 1

MC 202

Chair: Gert-Peter Brüggemann, Dieter Rosenbaum

11:00	Ricardo Actis	Plantar Pressure Distribution In The Diabetic Foot During Push-Off: Numerical Simulation Using The P-Version Of The Finite Element Method
11:15	Jason Cheung	Biomechanical Effects Of Plantar Fascia Release And Posterior Tibial Tendon Dysfunction - A Finite Element And Cadaveric Foot Simulation
11:30	Carl Imhauser	The Development And Evaluation Of A 3-Dimensional, Image-Based, Patient-Specific, Dynamic Model Of The Hindfoot
11:45	Paul Lundgren	Rotations In Rearfoot Joints At End Of Range Weight Bearing
12:00	William Ledoux	Forefoot Plantar Pressure Is Related To 3-D CT Derived Measures
12:15	Sachin Budhabhatti	Influence Of Foot Orientation And Bone Structure On Plantar Pressure Distribution

Bone 2

UC 1

Chair: Melissa Knothe-Tate, Luisa Moreno

11:00	Todd Ritzman	Mechanobiological Influences On Bone Tissue Engineering Strategies
11:15	Daisuke Tawara	Mechanical Evaluation Of Therapeutic Effect For Osteoporosis Vertebra By Using Patient-Specific Finite Element Analysis
11:30	Anja Niehoff	Voluntary Strength Training And Running Exercise Induce Site-Specific Bone Adaptation In Adult Female Rats
11:45	Grant Goulet	Fluid Flow In Bone Is Correlated To Sites Of Smallest Cross-Sectional Area Perpendicular To Load-Induced Stress Gradients
12:00	Russell Main	How Does Bone Tissue Microstructure Relate To In Vivo Bone Strains In The Goat Radius Through Ontogeny?
12:15	Ted Gross	Muscle Function Locally Mediates Bone Homeostasis

Monday, August 1

1:15 PM

Keynote Lecture

Waetjen Auditorium

Chair: Art Kuo

1:15	Andre Seyfarth	Emergence of Gait in Legged Systems
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Monday, August 1

2:15 PM

Legged Robotics

Waetjen Auditorium

Chair: Jon Dingwell, Andre Seyfarth

2:15	Christopher Vaughan	Comparing The Gait Of Bipedal Robots With That Of Infants
2:30	Juergen Rummel	Stable Locomotion Of Feedforward Controlled One-Legged Robot
2:45	Keith Gordon	Mechanical Performance Of Artificial Pneumatic Muscles To Power An Ankle-Foot Orthosis
3:00	Jesse Dean	Powering The Kneed Passive Walker With Biarticular Springs
3:15	Jimmy Li-Shin Su	Local Dynamic Stability Of Passive Dynamic Walking On An Irregular Surface

Gait Analysis

UC 6

Chair: Tung-Wu Lu, Sicco Bus

2:15	Michael Schwartz	A Comparison Of Two Foot Models Used In Clinical Gait Analysis
2:30	David Stephensen	Gait Deviations In Children With Severe Haemophilia Following Bleeding Into The Ankle Joint
2:45	Sam Augsburger	Assimilating Full Body Gait Graphs Into Single Area Plots
3:00	Matthew Cowley	Effect Of Marker Placement Methods On Calcaneal Rotations
3:15	Adam Fullenkamp	Clinical Usefulness Of Four Functional Knee Axis Algorithms

Shoulder

MC 201

Chair: Richard Debski, Mark Pierre

2:15	Toshimasa Yanai	In-Vivo Measurement Of The Compressive Force Under The Coraco-Acromial Arch
2:30	Clark Dickerson	Development Of A Biomechanical Shoulder Model For Ergonomic Analyses
2:45	Joseph Langenderfer	Variability In Isometric Force And Torque Generating Capacity Of Glenohumeral External Rotator Muscles
3:00	Mark Timmons	Arm Abduction Angle And Contraction Intensity Effects On Deltoid And Scapular Rotator Muscle Recruitment During Scapular Plane Isometric Contractions
3:15	Samuel R. Ward	Rotator Cuff Muscle Architecture: Implications For Glenohumeral Joint Stability

Foot 2

MC 202

Chair: Howard Hillstrom, William Ledoux

2:15	Dieter Rosenbaum	Pedographic Assessment Of Clinical And Functional Outcome After Hallux Valgus Surgery - Comparison Of 32 Patients Before And After Scarf Osteotomy
2:30	Gert-Peter Brüggemann	Effect Of Increased Mechanical Stimuli On Foot Muscles Functional Capacity
2:45	Michael El-Shammaa	The Effect Of Muscle Imbalance On Foot Pressure In Pediatric Patients
3:00	Michael Voigt	Foot Pronation In Vivo - Combined Midfoot And Hindfoot Kinematics
3:15	Michael Orendurff	Regional Foot Pressure During Running, Cutting, Jumping And Landing

Simulation

UC 1

Chair: Musa Audu, Ton van den Bogert

2:15	Pui Wah Kong	Computer Simulation Of The Takeoff In Springboard Diving
2:30	Sibylle Thies	Stepping On An Obstacle With The Medial Forefoot: Use Of A 3D Dynamic Control Model To Simulate Age And Neuropathy
2:45	Jia-Hsuan Lo	Simulation Of Forward Falls: Effects Of Fall Strategy And Available Muscle Strength On Injury Risk
3:00	Jos Vanrenterghem	Is Efficiency A Viable Criterion For Sub-Maximal Vertical Jumping?
3:15	Leonard Rozendaal	Joint Stiffness Requirements In A Multi-Segment Stance Model

Monday, August 1

4:00 PM

Pelvic Organ and Muscle Biomechanics

Waetjen Auditorium

Chair: Margot Damaser, Adonis Hijaz

4:00	Linda McLean	The Relationship Between Pelvic Floor And Abdominal Muscle Activation And The Generation Of Intravaginal Pressures In Healthy Continent Women
4:15	Jiro Nagatomi	A New Approach For Modeling And Analyzing The Viscoelastic Behavior Of Bladder Wall Tissue
4:30	Rebecca Long	MMP-I Up-Regulation As A Potential Mechanism For Increased Compliance In Muscle-Derived Stem Cell-Seeded Scaffolds For Urologic Tissue Engineering
4:45	Chris Constantinou	Direction Sensitive Sensor Probe For The Evaluation Of Voluntary And Reflex Pelvic Floor Contractions
5:00	Kevin Toosi	Time Course Changes In The Mechanical Properties Of The Rat Urinary Bladder Following Spinal Cord Injury
5:15	Chantale Dumoulin	Dynamometry For Measuring Pelvic Floor Function

ISB Technical Group: 3D Analysis of Human Movement UC 6

Chair: Serge Van Sint Jan, Allison Arnold

4:00	Serge Van Sint Jan	Towards An Advanced Clinical Expert System For Patient-Specific Modelling And Musculo-Skeletal (MS) Analysis?
4:15	Bruce MacWilliams	Current Challenges In Clinical Gait Analysis
4:30	Lasse Roren	Gait Data Collection Technology: Where Are We, Where Are We Going?
4:35	Jeff Thingvold	Model-Based Analysis in Biomechanics and New Media Applications
4:45	John Rasmussen	Challenges In Musculoskeletal Modeling For Clinical Use
5:00	Allison Arnold	Simulation-Based Treatment Planning For Gait Abnormalities: Vision And Challenges
5:15	Marco Viceconti	Fusion Of Biomechanics Data For Patient Monitoring In Pediatric Skeletal Oncology

ISB Technical Group: Shoulder Biomechanics

MC 201

Chair: DirkJan Veeger, Ed Chadwick

4:00	Paula Ludewig	Alterations In Scapular Kinematics In Patients With Shoulder Impingement
4:15	Alexis Wickwire	Position Of The Humeral Head Shifts In The Glenoid Due To The Presence Of Osteoarticular Lesions
4:30	Jurriaan de Groot	Arm Mobility Versus Glenohumeral Stability
4:45	Andrew Karduna	Suprascapular Nerve Block Disrupts The Normal Pattern Of Scapular Kinematics
5:00	Jules Dewald	The Effect Of Generating Anti-Gravity Shoulder Torques On Upper Limb Discoordination Following Hemiparetic Stroke
5:15	Thomas Bandholm	Force Steadiness, Neuromuscular Activation And Maximal Muscle Strength In Subjects Suffering From Subacromial Impingement Syndrome

ISB Technical Group: Footwear Biomechanics

MC 202

Chair: Joe Hamill, Elizabeth Hardin

4:00	Keith Williams	The Development Of The Footwear Technical Group
4:15	Mario Lafortune	The Footwear Technical Group and Industry
4:30	<i>Award winners are not known yet</i>	Nike Award presentation
4:45		Adidas Award presentation
5:00		New Balance Award presentation
5:15		Rsscan Award presentation

ISB Technical Group: Computer Simulation

UC 1

Chair: Rick Neptune, Federico Casolo

4:00	Mont Hubbard	History Of the ISB Technical Group Computer Simulation
4:10	Federico Casolo	TGCS Chairman's Report
4:15	Knoek van Soest	Prescribing Skeletal Motion Can Substantially Enhance Mechanical Power Output; A Simulation Study
4:30	Fred Yeadon	The Effect Of Anatomical And Robustness Constraints On Optimum Jumping Performance
4:45	Francisco Valero-Cuevas	Shifting To Population-Based Models And Inferring Model Structure From Data Are Two Directions That Will Enhance The Clinical Usefulness Of Modeling
5:00	B.J. Fregly	Predicted Gait Modifications To Reduce The Peak Knee Adduction Torque
5:15	Alison Sheets	Approximation Of Balanced Landings In Gymnastic Dismounts

Tuesday, August 2

8:30 AM

Keynote Lecture

Waetjen Auditorium

Chair: Tim Hewett

8:30	Julie Steele	Developing Textile Biofeedback Technology: From Brassieres to Noisy Knees
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Tuesday, August 2

9:30 AM

Knee Injuries 1

Waetjen Auditorium

Chair: Li-Qun Zhang, Julie Steele

9:30	Steven Blackburn	Knee Joint Moments During Sports Activities On Artificial Turf
9:45	Kevin Ford	Effect Of Gender On Knee Abduction And Flexion During Medial And Lateral Landings
10:00	Kelly McKean	Kinematic & Kinetic Differences Between Male & Female Soccer Players
10:15	Mette Kreutzfeldt Zebis	The Effect Of Acute Fatigue On Neuromuscular Activation Pattern During Side-Cutting In Female Team Handball Players

EMG

UC 6

Chair: Carlo De Luca, Graeme Wood

9:30	Michael Hahn	Neural Network Estimation Of Isokinetic Knee Torque
9:45	Paul Sung	Comparison Of Power Spectrum Measures To Entropic Measures Of Electromyography Time Series: Diagnostic Tools For Low Back Pain
10:00	Janessa Drake	Elimination Of ECG Contamination From EMG Signals: An Evaluation Of Currently Used Removal Techniques.
10:15	Didier Staudenmann	Improving EMG Based Muscle Force Estimation Using Principal Component Analysis On A High-Density EMG Array

Muscle Mechanics

MC 201

Chair: Maarten Bobbert, Constantinos Maganaris

9:30	Dilson Rassier	Phase Transition Of Force During Ramp Stretch Of Muscle Fibers Treated With BDM
9:45	Hanneke Meijer	Myofascial Force Transmission Is More Important At Low-Frequency Stimulation
10:00	Mir Ali Eteraf Oskouei	Force Enhancement In Sub-Maximal Voluntary Contractions
10:15	Thomas Sandercock	Cat Hindlimb Muscle Response To Slow Movement Shows Poor Relationship To Length-Tension Properties

Sport 1

MC 202

Chair: Peter Milburn, Tzyy-Yuang Shiang

9:30	Federico Casolo	Biomechanics Related To Racket Design And Customization
9:45	Lin-Hwa Wang	Momentum Transfer Of Trunk And Upper Extremity In Tennis Backhand Stroke
10:00	Young-Kwan Kim	Does Warming Up With A Weighted Bat Help Or Hurt Bat Speed In Baseball?
10:15	Hwai-Ting Lin	The Role Of Muscle In Glenohumeral Joint Stability During Baseball Pitching

Bone Modeling

UC 1

Chair: Ted Gross, Anja Niehoff

9:30	Daisuke Tawara	Patient-Specific Dynamic Stress Analysis Of Osteoporosis Vertebrae
9:45	Linping Zhao	Three Dimensional Finite Element Analysis Of Maxillary Palate With A Unilateral Cleft
10:00	Carmen Muller-Karger	Finite Element Bone Model Incorporating Heterogeneity And Anisotropy From CT
10:15	Andrea Tami	Finite Element Analysis Of Shockwave Propagation In Cortical Bone

Tuesday, August 2

11:00 AM

Knee Injuries 2

Waetjen Auditorium

Chair: Scott McLean, Tim Hewett

11:00	Tim Hewett	Coupled Biomechanical-Epidemiological studies for the Assessment Of ACL injury Risk.
11:15	Robert Shapiro	Biomechanical Differences Between Genders When Executing A Land And Cut Maneuver
11:30	Gregory Myer	The Effects Of Plyometric Versus Dynamic Stabilization And Balance Training On Lower Extremity Biomechanics
11:45	Ajit Chaudhari	Knee Loading Patterns That Endanger The ACL: Insights From Experimental and Simulation Studies
12:00	Bing Yu	Hamstring Co-Contraction Does Not Necessarily Reduce ACL Loading
12:15	Scott McLean	Sagittal Plane Biomechanics During Sports Movement Does Not Explain Higher Incidence Of ACL Injuries in Females

Gait and Osteoarthritis

UC 6

Chair: Fong-Chin Su, David Sanderson

11:00	Marius Henriksen	Effect Of Intra-Articular Lidocain Injections On Knee Joint Kinetics During Walking In Knee Joint Osteoarthritis Patients
11:15	Michael Anthony Hunt	Dynamic Lower Limb Alignment And Knee Joint Load During Gait In Patients With Knee Osteoarthritis
11:30	Laura Diamond	Adduction Moment During Gait In Patients With Moderate Or End-Stage Knee Osteoarthritis
11:45	Tom Jenkyn	Toe Out Gait And Reduction Of Knee Osteoarthritis Pain
12:00	Jennifer Erhart	Predicting Changes In Knee Adduction Moment Due To Load-Altering Interventions For Medial Compartment Knee OA From Pressure Distribution
12:15	Anne Muendermann	Hip Abductor Strength May Be Critical For Successful Gait Compensation In Patients With Medial Compartment Knee Osteoarthritis

Muscle In Vivo

MC 201

Chair: Richard Lieber, Walter Herzog

11:00	Glen Lichtwark	Gastrocnemius Muscle Tendon Unit Interaction Under Variable Gait Conditions
11:15	Sami Kuitunen	Behavior Of The Triceps Surae Muscle In Hopping
11:30	Stacie Ringleb	Bilateral Symmetry Of The Gastrocnemius Stiffness Measured With Magnetic Resonance Elastography In Healthy And Pathologic Muscle
11:45	Wendy Murray	Muscle Operating Range Includes Optimal Length At Extended Joint Postures Following Brachioradialis Tendon Transfer
12:00	Boris Prilutsky	In Vivo Fascicle Velocity Of Cat Gastrocnemius And Soleus Muscles During The Paw-Shake
12:15	Amanda Felder	Sarcomere Length Measurement Permits High Resolution Normalization Of Muscle Fiber Length In Architectural Studies

Sport 2

MC 202

Chair: Fred Yeadon, Richard Nelson

11:00	Mark King	Optimised Tumbling Performances That Are Robust To Perturbations
11:15	Maarten F. Bobbert	Explanation Of The Bilateral Deficit In Human Vertical Jumping
11:30	Alison Sheets	Effects Of Low Bar Avoidance And Gymnast Size On High Bar Dismount Performance
11:45	AJ "Knoek" van Soest	Does Strapping The Rower To The Seat Enhance Rowing Performance?
12:00	Blake Ashby	Optimal Control Simulations Demonstrate How Halteres (Hand-Held Weights) Increase Standing Long Jump Performance
12:15	Rene Ferdinands	Forward Solution Simulation Of The Mixed Action In Cricket Fast Bowling

Hip Replacement

UC 1

Chair: Tom Brown, Seth Greenwald

11:00	A Heijink	Generic Design Of The Hip Resurfacing Prosthesis
11:15	Jui-Ting Hsu	The Stability Of Acetabular Cup Under Screw Fixation
11:30	Liam Glennon	Direction-Dependence Of UHMWPE Wear For Metal Counterface Scratch Traverse
11:45	J P Little	A Multiple Material Parameter Finite Element Model Of Hip Resurfacing Arthroplasty
12:00	Marco Viceconti	Subject-Specific FE Model For The Prediction Of The Relative Micromotion In A Total Hip Implant: Verification And Validation
12:15	Jihui Li	Locating Fatigue Microcracks Occurring In Cemented Total Hip Arthroplasty

Tuesday, August 2

1:15 PM

Keynote Lecture

Waetjen Auditorium

Chair: Seth Greenwald

1:15	Masahiro Kurosaka	History and Future of Anterior Cruciate Ligament Reconstruction
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Tuesday, August 2

2:15 PM

Knee Mechanics 1

Waetjen Auditorium

Chair: Leendert Blankevoort, Masahiro Kurosaka

2:15	Rochelle Nicholls	Implantation Of A Total Knee Arthroplasty Prosthesis Imposes Abnormal Strain On Local Soft Tissues
2:30	David Fung	Changes To The Rat ACL Resulting From Subfailure Impingement Loading
2:45	Choongsoo Shin	Combined Valgus And Internal Rotation Moments Strain The ACL More Than Either Alone: Implications For Non-Contact ACL Injuries
3:00	Kiyonori Mizuno	Gender Dimorphism In Knee Joint Mechanics Affects ACL Loading
3:15	Naveen Chandrashekar	Sex Based Differences In Tensile Properties Of Human Anterior Cruciate Ligament

Methods 1

UC 6

Chair: Tim Derrick, Peter Quesada

2:15	Daniel Benoit	Skin Movement Artifact During Gait And Cutting Movements Measured In Vivo
2:30	Anthony Schache	Influence Of Thigh Marker Cluster Design On The Estimation Of Hip Axial Rotation
2:45	Tung-Wu Lu	A Kinematic Model Of The Upper Extremity With Globally Minimized Skin Movement Artefacts
3:00	Lars Muendermann	Validation Of A Markerless Motion Capture System For The Calculation Of Lower Extremity Kinematics
3:15	Stefano Corazza	Lower Limb Kinematics Through Model-Free Markerless Motion Capture

Spine 1

MC 201

Chair: Trey Crisco, Takahiro Ishii

2:15	Ryutaro Fujii	In Vivo Three-Dimensional Motion Analysis Of The Lumbar Spine :Coupling Motion Of The Lumbar Spine During Rotation
2:30	Ruth Ochia	In Vivo Segmental Motion Measurement In Asymptomatic And Chronic Low Back Pain Subjects Using Volume Merge Method
2:45	Heydar Sadeghi	Perturbation In Trunk Motion Of Low Back Patients
3:00	Ralph Gay	The Neutral Zone In Human Lumbar Spine Sagittal Plane Motion: A Comparison Of In Vitro Quasistatic And Dynamic Force Displacement Curves
3:15	William Anderst	Three-Dimensional In Vivo Rotation Of Fused And Adjacent Lumbar Vertebrae

Ankle

MC 202

Chair: Don Anderson, Tom Buchanan

2:15	Shing-Jye Chen	Effects Of Impeded Foot Arch Height On Calcaneal Eversion And Ankle Joint Forces During Gait
2:30	Yuki Tochigi	The Contribution Of Articular Surface Geometry On Ankle Stabilization
2:45	Leendert Blankevoort	Three-Dimensional Bone Kinematics In An Anterior Drawer Test Of The Ankle Joint
3:00	Kristin Zhao	Mechanical Efficacy Of Tendon Transfer Operations For Foot Drop
3:15	Jane Goldsworthy	Chronic Stress Exposure Following Intra-Articular Ankle Fractures

Head Injury

UC 1

Chair: Lars Janshen, David Dean

2:15	Trey Crisco	An Approach To Calculating Linear Head Accelerations Is Not Affected By Rotational Head Accelerations
2:30	Sarah Manoogian	Head Acceleration Is Less Than 10 Percent Of Helmet Acceleration During A Football Impact
2:45	Matthew Craig	Human Mandible Response To Impact Loading Of Chin
3:00	David Pearsall	Durability Of Ice Hockey Helmets To Repeated Impacts
3:15	S. W. Gong	A Novel Approach For A Solid Object Impact On Human Head

Tuesday, August 2

3:45 PM

Poster Session: Ergonomics 3

UC 201

1	Carol Murphy	Children's Postural Changes At Adult Computer Workstations
2	Taylor Murphy	A Comparison Of Task And Muscle Specific Isometric Submaximal EMG Data Normalization Techniques For The Analysis Of Muscle Loads During Hydraulic-Actuation Joystick Controller Use
3	Joshua S. Danker	Investigation Of Shoulder Range Of Motion Limits For Application To Ergonomic Analysis
4	HyunWook Lee	Trunk Stiffness Improvement By Physical Therapy/Exercise During Unstable Sitting
5	Reuben Escorpizo	Work Time And Rest Percentage During Pick-And-Place Task
6	Luke Wooldridge	Kinetic Evaluation Of Right Shoulder And Elbow During Spiccato Technique Violin Bowing
7	Timothy N. Judkins	Electromyographic Correlates Of Robotic Laparoscopic Training
8	Sivaram Shanmugam	Hand Movement Analysis Of The Elderly When Using A Remote Control
9	Kristine Krajnak	The Biodynamic And Physiological Responses Of The Rat Tail To A Single Bout Of Vibration Exposure
10	Kenji Narazaki	Training And Performance Of Robotic Laparoscopy: Electromyographic Analysis To Quantify The Extent Of Proficiency
11	Michael Holmes	Motion Induced Interruptions During Simulated Ship Motions
12	Julie Matthews	Thoracolumbar Kinematics During Lifting Exertions In Moving Environments
13	Hitoshi Yanagi	Upper Limb Motion During Snow Shoveling With Regular And Modified Shovel
14	Joan Stevenson	Theoretical Basis Of A Load Carriage Limit Equation
15	Alvin Au	The Effects Of Submaximal Shoulder Moment, Task Precision And Mental Demand On Muscle Activity During Grip Exertions
16	D. Christian Grieshaber	Forearm Muscle Activity During Three Hose Insertion Tasks As Measured By Surface Electromyography Of The Flexor Digitorum Superficialis Muscle
17	David Andrews	Acceptable Peak Forces And Impulses During Manual Hose Insertions
18	Krystyna Gielo-Perczak	An Investigation Of The Congruity In Geometry Of The Glenohumeral Joint On The Maximum Acceptable Load During Pushing
19	Bente R. Jensen	Reduced Force Control And Increased Contralateral Trapezius Co-Activation Among Subjects With Work Related Musculoskeletal Symptoms
20	Alison Godwin	Virtual Jack Manikin Used To Assess Postural Variables And Visibility Measures
21	Joel A. Cort	An Electromyographic And Psychophysical Examination Of Fastener Initiations In Automotive Assembly
22	Stuart Fraser	Target Acquisition By Pilots Wearing Various Head-Supported Masses During Simulated Flight

Tuesday, August 2**3:45 PM****Poster Session: Sport 5**

UC 201

23	Ching-Cheng Chiang	The Effects Of The Tennis Slice Backhand With Different Ball Speeds On The Bounce Angle
24	Yi-Ming Huang	Intermuscular Coordination Analysis Of Skilled Double-Handed Backhand And Single-Forehand Players
25	Yuh-Yih Lin	Vibration Analysis Of Tennis Racket Caused By Impact Between Different Configuration And Additional Weight
26	Jinn-Yen Chiang	Properties Of Tennis Racket Made By Differential Carbon Fibre
27	Tsai, Chien-Lu	Biomechanical Analysis Of EMG Activity Between Badminton Smash And Drop Shot
28	Ti-Yu Chen	The Vibration And Coefficient Of Restitution Analysis In Tennis Racketsvaried With Material Composition And Fiber Arrangement
29	Katie B. O'Keefe	Joint Velocity Sequence Of The Upper Extremity During Fly-Casting
30	Joshua R. Allen	Upper Extremity Kinematics During Fly-Casting
31	Hsiente Peng	Electromyographic Analyses Of Standing Shot Put Throw
32	Michele LeBlanc	Factors Affecting The Javelin's Attitude Angle In American Javelin Throwers
33	Tsung-Ying Hung	Investigation Of Appropriate Weighted Bat By Muscle Activity
34	Tomoyuki Matsuo	Does Course Of A Preceding Pitch Influence Baseball Batting As They Say?
35	Takahito Tago	The Trunk Twist Angle During Baseball Batting At The Different Hitting Points
36	Brady Tripp	Functional Fatigue Decreases Three-Dimensional Multijoint Position Reproduction In Overhead Athletes
37	Tomohisa Miyanishi	Transfer Of Angular Momentum In The Baseball Batting
38	Tsutomu Jinji	Aerodynamic Characteristics Of Baseballs Delivered From A Pitching Machine
39	Rene Ferdinands	Elbow Angle Excursion Slope As A Determinant Of Bowling Legality
40	Daisaku Hirayama	The Kinematic Changes Of Pitching During A Simulated Baseball Game
41	Yi-Ling Chiang	Rotation Characteristics Of The Shoulder, Torso, And Pelvis During Pitching For Taiwan Elite And Subelite Collegiate Baseball Pitchers
42	Alexander Willmott	A Model For Assessing The Contributions Of Hand Forces And Torques To The Speed Of A Swinging Implement: Application To The Field Hockey Hit
43	David Pearsall	Ice Hockey Stick Recoil Mechanics
44	Chien-Nan Liao	Characteristics Of Muscle Activity In Distal And Proximal Upper Extremities In Different Phases For Taiwan Olympic Female Archery Players
45	Cheng-Ming Hu	Muscle Activation By Olympic Female Archers At Different Releasing Rhythms

Tuesday, August 2

3:45 PM

Poster Session: Biomechanics of Aging

UC 201

46	Victoria Hood	Developing A Computer Aided Design Tool For Inclusive Design
47	Susan K M Wilson	Load Distribution During Sit-Stand-Sit Using An Instrumented Chair
48	Victoria Hood	Biomechanics Of Stair Descent In Older Adults
49	Kenneth Meijer	Running Does Not Protect Against Age-Related Gait Adaptations
50	Masaya Anan	The Relation Of The Trunk-Pelvic Movement And Lower Extremity Joint Moment On Elderly People During The Sit-To-Stand Motion
51	Bih-Jen Hsue	Balance And Gait Of Elderly Women During Stairs Locomotion In High-Heeled Shoes
52	Jansen Atier Estrázulas	Kinetic Characteristics Of Gait In Children, Adults And Elderly
53	Hao-Ling Chen	Comparisons Of The Lower Limb Mechanics Between Young And Older Adults When Crossing Obstacles Without Visual Guide
54	Carolina Mitre Chaves	Sit-To-Stand Performance With Young And Elderly Subjects
55	Munetsugu Kouta	Biomechanical Analysis Of Sit-To-Walk Frequently Observed In Daily Living: Effect Of Speed On Healthy Elderly Persons
56	Chia-Huei Shen	Electromyography And Leg Stiffness Comparison Between Old An Young Adults In Descent Stair Walking
57	Hidetaka Okada	Kinetic Characteristics Of Middle-Aged And Older Adults During Walking
58	Robert Shapiro	Biodynamic Changes Accompanying Age And Inactivity In Females
59	Misono Sakai	Postural Control Against Perturbation During Walking

Poster Session: Osteoarthritis and Cartilage

UC 201

60	Monica Maly	Are The Gait Kinetics Of Women And Men With Knee Osteoarthritis Different?
61	Kurt Manal	Foot Progression Angle And The Knee Adduction Moment In Individuals With Medial Knee Osteoarthritis
62	Le Zhang	Modeling Of Solute Transport In Cartilage Under Static And Dynamic Loading
63	Marius Henriksen	Effect Of Intra-Articular Lidocain Injections On Impact Attenuation During Walking In Knee Joint Osteoarthritis Patients
64	Anneliese D. Heiner	High Shear Stress Induces P53 Expression And Apoptosis In Cartilage Explants
65	Nicole A. Kallemeyn	A Finite Element Analysis Of Cartilage In Cyclic Triaxial Compression
66	Qing Wang	Evaluation Of Osmosis-Induced Deformation Of Articular Cartilage Using Ultrasound Biomicroscopy Imaging
67	Danielle Biton	Heelstrike Dynamics During 6 Minute Walk Test Among End Stage Knee OA Patients
68	Douglas R. Pedersen	Cinematic Measurement Of Cartilage Plugs In Unconfined Compression
69	Sang-Kuy Han	Influence Of The Pericellular Microenvironment On Chondrocyte Modelling

Tuesday, August 2

3:45 PM

Poster Session: Methods in Movement Analysis

UC 201

70	Rochelle Nicholls	In Vitro Ligament Strain Measurement: Can Implantable And Non-Invasive Methods Yield Comparable Results?
71	Zhiqing Cheng	Use Of Wavelets In The Analyses Of Biodynamic Responses
72	Sujani N. Agharhasamakulam	Comparison Of Two Ankle Electrogoniometers And Motion Analysis
73	David Miller	An Improved Surrogate Method For Detecting The Presence Of Chaos In Gait
74	Lei Ren	Generalized Approach To Three-Dimensional Marker-Based Motion Analysis Of Biomechanical Multi-Segment System
75	Xiaofeng Wang	Lasr: A New Analytical Tool To Increase Information Retrieval From Complex Images
76	Jill Brimacombe	Validation Of Calibration Techniques For Tekscan Pressure Sensors
77	Maria Lebedowska	Experimentally Derived Model Of Human Body Growth
78	Stacie Ringleb	Mechanical Properties Of Relaxed And Contracted Thigh Muscles Using Magnetic Resonance Elastography
79	Samuel Bertrand	Estimation Of Human Internal And External Geometry From Selected Body Measurements
80	Frank L. Buczek	Comparing Normal Gait Analyses Using Conventional And Least-Squares Optimized Tracking Methods
81	Andre Plamondon	Validation Of A Dosimeter For The Three-Dimensional Measurement Of Trunk Motion
82	Raviraj Nataraj	Artificial Neural Network Prediction Of Center Of Pressure Using Trunk Acceleration Inputs During Perturbed Human Bipedal Stance
83	David W. Wagner	Dynamic Calibration Of An Extended-Range Electromagnetic Flock Of Birds Motion Tracking System
84	Richard Jones	Prediction Of Lower Limb Segment Kinematics From Foot Accelerations
85	Stephane Armand	Extraction Of Knowledge For Movement Analysis Data - Example In Clinical Gait Analysis.
86	Na Jin Seo	Methods To Measure Static Coefficient Of Friction Between Hand And Other Materials
87	Wangdo Kim	Estimating The Axis Of A Screw Motion From Noisy Data - New Method Based On Plücker Lines
88	Ming Wu	Evaluate The Potential Contributions Of Swing Leg To The Stability Of Body During Single Foot Support Phase Of Walking
89	Timothy R. Derrick	Extraction Of The Impact From Vertical Ground Reaction Forces
90	Lise Worthen	Design Of A Gait Laboratory To Enable Biomechanical Analysis Of Individuals With Post-Stroke Walking Deficits: Force Platform Positioning
91	Sujatha Srinivasan	An Analytically Tractable Model For A Complete Gait Cycle
92	Michelle Sabick	Differences In Joint Kinetics In Girls Due To Choice Of Body Segment Parameters
93	Robert J. Jack	Validation Of The Vicon 460 Motion Capture System For Whole-Body Vibration Acceleration Determination

(session continued on next page)

Tuesday, August 2

3:45 PM

Poster Session: Methods in Movement Analysis (continued) UC 201

94	Young-Hoo Kwon	A 3-Dimensional Camera Calibration Algorithm For Underwater Motion Analysis With Refraction Correction Capability
95	Kurt Manal	A Numerical Method For Determining Ideal Camera Placement
96	Laura Held	Parameterization Of Joint Kinematics Using Quaternions
97	Laura Bray	Development Of A Novel Barefoot Torsional Flexibility Device: A Pilot Study
98	Richard J. Beck	Simulation Of Longitudinal Arterial Stretch In The Lower Limbs During Gait
99	Walter Rapp	Calculating Anatomical Leg Structures From Surface Contours

Poster Session: Tissue and Biomaterials UC 201

100	John Wu	Measurement Of Nonlinear-Elastic Properties Of Skin And Subcutaneous Tissues Via Unconfined Compression Tests
101	Kristen Bethke	Creating A Skin Strain Field Map With Application To Advanced Locomotion Spacesuit Design
102	Donald Sherman	Evaluation And Quantification Of Bruising
103	Pablo-Jesus Rodríguez-Cervantes	Effect Of The Prefabricated Metallic Post Length On Restored Teeth: Fracture Strength And Stress Distribution
104	J. Lawrence Katz	Micromechanical Analysis Of Dentin Elastic Anisotropy
105	Aaditya C. Devkota	Analysis Of Collagenase, Collagen, And Glycosaminoglycan Content Of Cyclically Loaded Tendon Explants In Culture
106	Tim Wrigley	Biomechanical Features Of Normal Patellar Tendons And Those With Patellar Tendinopathy
107	Mikhail Perelmuter	A Micromechanical Model Of The Periodontal Ligament
108	Emika Kato	Repetitive Muscle Contractions Induce Mechanical Changes Of Achilles Tendon
109	Scott Lucas	Failure Properties Of Cervical Spinal Ligaments Under High-Rate Loading
110	Megumi Ohta	Isometric Training Alters Mechanical Properties Of Tendon Structures
111	Brian P. Beaubien	An Experimental Method For Mechanical Analysis Of The Interspinous And Supraspinous Ligaments
112	Yeung Chi Keung	Denervation Impairs Achilles Tendon Healing In Rat Model
113	Robin Adams	Density Changes in Bovine Tendon Resulting from Buffered and Unbuffered Solutions
114	Abhijit Bhatia	The Effect Of Glycosaminoglycans And Hydration On Viscoelastic Properties Of Aortic Valve
115	Judit E. Puskas	Evaluation Of The Fatigue Properties Of Rubbery Biomaterials Using The Hysteresis Method
116	L.Y. Li	Nonlinear Analysis Of The Behaviour Of The Human Cornea
117	Nai-Shang Liou	Investigating Full Field Deformation Of Soft Tissue Under Simple Shear Tests By The Fourier Transter Moiré Method
118	Takatsugu Furukawa	Effect Of Viscosity On Local Impedance Of Biological Gel:

Poster Session: Foot and Ankle

UC 201

119	Mehrdad Anbarian	Effect Of Different Wedge Conditions On Joint Angle Changes During Single-Limb Stance
120	Gong Shi Wei	Energy Flow In High Heel Shoes In Walking
121	Karen Julie Mickle	Do Overweight And Obesity Affect Dynamic Plantar Pressure Distributions In Pre-School Children?
122	Weng-Pin Chen	Dynamic Simulation And Experimental Validation Of The Plantar Foot Pressure During Heel Strike
123	Anneleen De Cock	A Foottype Classification With Cluster Analysis On Plantar Pressure Distribution During Barefoot Jogging
124	Yi-Ling Chiu	Effect Of Walking Speed In Change Of The Peak Plantar Pressure Distribution
125	Richard Jones	In Vitro Study Of Foot Kinematics Using A Walking Simulator
126	Jeremy Crenshaw	The Effect Of Laterally Wedged Orthoses On Talus Angle
127	Richard Jones	Effects Of Different Profiles Of Lateral Wedging On Knee Adduction Moments During The Loading Period Of The Gait Cycle
128	David Wallace	Ground Reaction Forces During Level Walking With And Without Lateral Heel Wedge Orthotics
129	Nachiappan Chockalingam	Ankle Joint Dorsiflexion: Assessment Of The True Values
130	XueCheng Liu	Dynamic 6-Segment-Foot Motion Using Electromagnetic Tracking System
131	Christopher G. Neville	The Effect Of Hindfoot And Forefoot Positions On Posterior Tibialis Muscle Length
132	Michael Voigt	Electrogoniometric Evaluation Of Foot Kinematics During Walking At Different Velocities
133	Sicco Bus <i>Young Investigator Award finalist</i>	Offloading The Diabetic Foot Using Forefoot Offloading Shoes
134	Matthew Cowley	Differences In Midfoot Rotations Between Foot Types
135	William R. Ledoux	Quasi-Linear Viscoelastic Properties Of The Plantar Soft Tissue In Compression
136	John H. Challis	Mechanical Properties Of The Human Heel Pad: A Comparison Between Populations
137	Philippe Young	An Innovative Tool For Generating Numerical Models Of The Human Foot
138	Kiersten Anas	Medial Longitudinal Arch Motion And The Windlass Effect During Gait
139	Jaebum Son	A New Frontal Plane Foot Model Shows The Effect Of Narrowed Base Of Support On Unipedal Balance
140	Howard J Hillstrom	How Does Shoe Upper Design Influence Plantar Pressure Distribution?
141	Jinsup Song	Can A Sandal Arch Support Reduce Plantar Hallucial Microcirculation?
142	Ahmet Erdemir	Therapeutic Footwear Design: A Finite Element Modeling Approach
143	Zaid M. Hasasneh	Relationship Between Pressure And Shear Under The Foot
144	Michael J. Mueller	Finite Element Analysis On The Effect Of Soft Tissue Thickness On Plantar Pressures In Subjects With Diabetes And Peripheral Neuropathy
145	Donovan J. Lott	Relationship Between Soft Tissue Deformation And Applied Pressure Along The Second Ray Of The Plantar Neuropathic Foot

(session continued on next page)

Tuesday, August 2**3:45 PM****Poster Session: Foot and Ankle (continued)**

UC 201

146	Dequan Zou	Pressure Gradient As A Potential Indicator Of Plantar Skin Injury On The Neuropathic Foot
147	W.U. Lijun	Computer Simulation For Internal Stability Of Foot Longitudinal Arch
148	Robin Queen	The Reliability And Reproducibility Of Foot Measurements Using A Mirrored Foot Photo Box Compared To Caliper Measurements
149	Jongpeel Joo	Prediction Of Cycle Shoe Performance In Relation To Outsole Materials Based On Biomechanical Testing And Finite Element Analysis
150	Mehrdad Anbarian	Foot Type Classification Using Fuzzy Logic
151	Gautham Gopalakrishna	Biomechanically Designed Scientifically Appropriate Diabetic Footwear
152	Smita Rao <i>Young Investigator Award finalist</i>	Changes In Mechanical Characteristics Of The Plantar Flexor Muscles In Individuals With Diabetes Mellitus
153	Annaliese Dowling	How Does Obesity And Gender Affect Foot Shape And Structure In Children?
154	Jason Wilken	The First Metatarsal As A Fixed Strut: New Insights Into Dynamic Arch Function

Poster Session: Rehabilitation

UC 201

155	Archana Sangole	Patterns Of Hand Motor Dysfunction In Brain Injury
156	Wen-Lin Tung	Effect Of Bilateral Reaching On Affected Arm Motor Control In Stroke - With And Without Loading On Unaffected Arm
157	Jyh-Jong Chang	Effects Of Bilateral Resistance-Induced Arm Movement Training On Arm Motor Function In Chronic Stroke
158	Tung-Wu Lu	Kinematic And Kinetic Analysis Of Sit-To-Stand With And Without A Cane In Hemiplegic Subjects
159	Shashank Raina	The Effect Of Foot Placement On Sit-To-Stand With And Without Walker Assistance
160	Zhen-Wei Wu	Muscle Coordination In Stroke Patients' Upper Limbs
161	Wen-Shen Liao	Postural Adjustment Of Spinal Cord Injured Subjects With Knee-Ankle-Foot Orthosis
162	Stephanie J. Nogan	Effects Of Trunk And Hip Stimulation During Bimanual Reaching After Spinal Cord Injury
163	Luci Fuscaldi Teixeira-Salmela	Speed Related Changes In Lower Limb Joint Contributions To Mechanical Energy During Gait Of Stroke Subjects
164	Kisik Tae	Repetitive Symmetric Arm Training And Motor Cortex Activation In Chronic Hemiparetic Patients
165	H.A.M. Seelen	Effects Of AFO-Assisted Ankle Angle Position On Dynamic Knee Stability In Brain Injured And Spinal Cord Injured Patients
166	Rong-Ju Cherng	Effect Of Gait Training With Treadmill And Suspension In Children With Spastic Cerebral Palsy
167	Michael D. Ellis	Shoulder-Position Dependant Elbow Torque Coupling During Adduction After Stroke
168	Jose Luis Lujan	Unique Solution For Feed-Forward Control Of Neuroprosthetic Systems Characterized By Redundant Muscles Acting On Multiple Degrees Of Freedom

169	Daniel Theoret	Three Dimensional Knee Joint Kinematics And Lower Limb Muscle Activity Of Anterior Cruciate Ligament Deficient Knee Joint Participants Wearing A Functional Knee Brace During Running
170	Mark E. Dohring	Characterization Of Intralimb Coordination Deficits In Chronic Patients
171	Henry Wang	Biomechanical Analysis Of Sit-To-Stand After Bilateral Total Knee Replacement
172	Mohammad Reza Fotoohabadi	Hip-Spine Interaction During Sit-To-Stand In Healthy Young Subjects
173	Chris Mizelle	Center Of Pressure Measures Predict Hemiparetic Gait Velocity
174	Antoinette Domingo	Muscle Activation During Manually Assisted Treadmill Training After Incomplete Spinal Cord Injury
175	John W. Chow	Bilateral Comparisons Of Isokinetic Knee Strength In Unilateral Total Knee Replacement Individuals
176	Jen-Suh Chern	Center Of Pressure Trajectory During Whole Body Reaching In Hemiplegic Patients

Poster Session: Finite Element Modeling and Imaging

UC 201

177	Hsiang-Ho Chen	Biomechanical Study Of Kummell's Disease By Finite Element Analysis
178	Jill Schmidt	What Is The Accuracy Of Surface Models Created From Visible Human Male Computed Tomography Data?
179	Nicholas John Byrne	Finite Element Analysis Of A Total Ankle Arthroplasty Over One Stance Phase
180	Naira Campbell-Kyureghyan	Prediction Of Intervertebral Disc Creep During Flexion Using A Combined Experimental And Finite Element Approach
181	D. C. Barton	New Method For Coupled Fluid-Structure Interaction Problems In Biomechanics
182	Cheolwoong Ko	Development Of Human Pelvic Bone FE Model By Considering Pelvic Anthropometry
183	Shuo Yang	A Better Image Degradation Method For Converting High Resolution CT Scans Into Finite Element Models
184	Christine Draper	Is Patellar Cartilage Thickness Reduced In Individuals With Patellofemoral Pain?
185	Shuo Yang	A New Voxel Grayscale Based 3D Image Registration Validation Method
186	Wangdo Kim	Objective Ulcer Quantification By Rim Curvature Map
187	Qunli Sun	FE Modeling And Analysis Of Compressed Human Buttock-Thigh Tissue
188	Yang Dai	Quantitative Prediction Of Progression Of Articular Cartilage Degeneration Following Incongruous Intra-Articular Fracture Reduction
189	Viet Bui Xuan	From Reality To Model In Minutes Or On The Aerodynamics Of A Thanksgiving Turkey
190	Heidi-Lynn Ploeg	What Factors Effect The Accuracy Of Solid Models Made From CT Data?
191	Mehran Armand	Parametric Finite Element Model Of Femur From CT Data
192	Sylvana Garcia	A Validation Study: Using CT Scans To Calculate Volume, Weight And Density
193	Todd C. Doehring	New Open-Source Tools For 3D Reconstruction From Medical Images
194	Marc Petre	Using Data From Multiple Tests To Determine Foam Parameters: Modeling Implications

Tuesday, August 2

3:45 PM

Poster Session: Gait and Locomotion

UC 201

195	Max Kurz	An Artificial Neural Network That Explores The Role Of Sensory Information For Learning The Neural Connections For Locomotion
196	Tonya Parker	Longitudinal Study Of Gait Stability After Concussion
197	Susanne Lipfert	Leg Stiffness In Walking And Running
198	Chris Hurt	Is There A Gait Transition Between Run And Sprint?
199	Robyn M. Wharf	Kinetic Analysis Of Gait On Inclined Surfaces
200	Wang Xishi	The Stress Level Analysis For Dynamic Cases At Human Hip Joint
201	Dieter Rosenbaum	Leg Length And Leg Torsion Measurement With Ultrasound In Children During One Year - First Results
202	Songning Zhang	Ground Reaction Forces And 3D Kinematics Of Short-Leg Walking Boots In Gait
203	Marina Gouvali	The Variability Of Dynamic And Spatio-Temporal Parameters Of The Running Stride
204	Nobuhiro Kito	Phase Plane Analysis Of Stability In Turning Movement In Subjects With Functional Ankle Instability
205	Alan Hreljac	Kinetic Factors Influencing The Gait Transition Speed During Human Locomotion
206	Lei Ren	Prediction Of Human Walking Based On Simple Gait Descriptor
207	Wolfgang I. Schoellhorn	The Influence Of Music On Kinematic And Dynamic Gait Patterns
208	Christina Danielli C. M. Faria	Relationships Between Iliotibial Band Length And Frontal Plane Pelvic Tilt
209	Jesús Cámara	The Influence Of The Firemen Boots On The Heel Strike Transient During Walking
210	Matthew Seeley	The Effect Of Mild Limb Length Inequality On Able-Bodied Gait Asymmetry: A Preliminary Analysis.
211	Andrea Lay	Control Strategy Transitions During Slope Walking
212	Patricia V. de Souza	Biomechanic Analysis Of The Force Applied In Aquatic Gait Of Humans Immersed At The Sternum Level
213	Shih-Chiao Tseng	Evidence Of Movement Control Adaptation In A Lower Extremity Motor Task
214	Patricia V. de Souza	Dynamometric Analysis Of The Anteroposterior Force Applied In Aquatic Human Gait
215	Kotaro Sasaki	Differences In Muscle Function Between Walking And Running At The Preferred Walk-Run Transition Speed
216	Rong-Ju Cherng	Effect Of A Dual Task On Walking Performance In Preschool Children
217	Chris Rhea	Gait Adaptation: Lead Toe Clearance Continually Decreased Over Multiple Exposures With And Without On-Line Visual Information
218	Philippe Malcolm	Treadmill Versus Overground Run To Walk And Walk To Run Transition Speed In Unsteady State Locomotion Conditions
219	Sam Walcott	Pseudo-Elasticity And Kinetic Energy Storage: Definitions And Applications To Human Movement
220	Prism S. Schneider	Effect Of Dynamic Ankle Joint Stiffness On Joint Mechanics And Muscle Activation Patterns During Locomotion

221	Jeremy Noble	Adaptive Changes In Lower Limb Coordination In Response To Unilateral Loading During Treadmill Locomotion
222	Paul DeVita	Lower Extremity Joint Work Is Larger In Ascending vs. Descending Gaits
223	Cara L. Lewis	Walking In Greater Hip Extension Increases Predicted Anterior Hip Joint Reaction Forces
224	Andre Seyfarth	Hip Control In Locomotion
225	Katrina Simpson	Do Lower Limb Muscle Activity Patterns Change With Prolonged Load Carriage?
226	Ava Segal	The Method Of Using Phase Plane Portraits And First Return Maps To Examine Turning
227	Rebecca Whissell	Is Child Weight To Bag Weight The Best Way To Assess Risk Of Low Back Pain In Children Due To Backpack Use?
228	Robert B. Eckhardt	Short Stature Or Tall Story? Hypothesis And Imagination In Body Size Reconstruction Of LB1 From Flores, Indonesia
229	Shigehito Matsubara	Symmetry And Asymmetry In The Lower Limbs Of Athletes During Gait
230	Robert B. Eckhardt	Was The Early Hominid Brain Musclebound?
231	Michael Bohne	The Effects Of Hiking Downhill Using Two Trekking Poles While Carrying Different External Loads in A Backpack

Wednesday, August 3

8:30 AM

ISB Promising Young Investigator Award

Waetjen Auditorium

Chair: Walter Herzog

8:30	Constantinos Maganaris	Adaptive Response Of Tendon To Paralysis
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ISB Clinical Biomechanics Award

Waetjen Auditorium

Chair: Kim Burton, Sandra Olney

9:00	Magnus Kjartan Gislason	The Three Dimensional Load Transfer Characteristics Of The Wrist During Maximal Gripping.
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Wednesday, August 3

9:30 AM

ISB Young Investigator Award finalists

Waetjen Auditorium

Chair: Maarten Bobbert

9:30	Emma A. C. Johnson	The Analysis Of Pressure Response In Head Injury: A Validation Study
9:45	Craig P. McGowan	The Mechanics Of Jumping Vs. Steady Hopping In Yellow-Footed Rock Wallabies.
10:00	Thomas J. Withrow	Valgus Loading Causes Increased In Vitro ACL Strain In Simulated Jump Landing
10:15	Ann M. Barkowitz	A Novel Robotic Device With Haptic Feedback For Lower Limb Rehabilitation
10:30	Jill Higginson	Reduced Plantarflexor Contributions To Support In Post-Stroke Hemiparetic Gait

Posture and Balance 1

UC 6

Chair: Alan Walmsley, Tammy Owings

9:30	Ian Loram	Paradoxical Muscle Movements In Human Standing
9:45	Erin Wilson	Lumbar Extensor Fatigue Changes Postural Recovery Strategy
10:00	Sukyung Park	The Effect Of Initial Lean On Human Postural Scaling
10:15	Peter M. Quesada	Effects Of Smooth vs "Prickly" Surface Conditions On Tiltboard Performance

Spine 2

MC 201

Chair: Jim Potvin, James Dickey

9:30	Robert Parkinson	Does Load Magnitude Alter Cumulative Load Tolerance? "Weighting" For An Answer
9:45	Erik Cattrysse	3D Arthrokinematic Analysis Of Coupled Motion In The Human Upper-Cervical Spine: In Vitro Analysis Of High Velocity Thrust Techniques
10:00	Dave Glos	Intra-Annular Bilateral Spinal Compression: Novel MEMS Sensors
10:15	David Nuckley	Compressive Mechanics Of The Maturing Human Spine

Lower Extremity Injury

MC 202

Chair: Paul DeVita, Kathy Simpson

9:30	Rebecca Zifchock	Kinetic Asymmetry In Left And Right Dominant Female Runners: Implications For Injury
9:45	Tine Willems	Relationship Between Foot Progression Angle And Exercise-Related Lower Leg Pain
10:00	Joseph Seay	Dynamic Symmetry In Female Runners With A History Of Tibial Stress Fractures
10:15	Sara Novotny	The Effects Of Quantitative Feedback On The Reduction Of Landing Force

Prosthetics and Orthotics

UC 1

Chair: Sandra Olney, Bob Gregor

9:30	Jack R. Engsberg	Comparison Of Rectified And Unrectified Sockets For Transtibial Amputees
9:45	Martin Twiste	The Effect Of Prosthesis Compliance On Residual Limb-Socket Interface Forces
10:00	Alexander Razzook	Can Passive Dynamic Ankle Foot Orthoses Replicate Natural Ankle Stiffness
10:15	Steven H. Collins	Controlled Energy Storage And Return Prosthesis Reduces Metabolic Cost Of Walking

Wednesday, August 3

11:00 AM

Muybridge Award Lecture

Waetjen Auditorium

Chair: Mary Rodgers

11:00	Rik Huiskes	Bone: The Engineer's Ultimate Dream Material
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Thursday, August 4

8:30 AM

ASB Jim Hay Award Lecture

Waetjen Auditorium

Chair: Walter Herzog

8:30	Mont Hubbard	Spinning Sports Balls
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Thursday, August 4

9:30 AM

ASB Young Scientist Awards

Waetjen Auditorium

Chair: Walter Herzog

9:30	Katherine Holzbaaur <i>Winner of ASB Predoctoral Young Scientist Award</i>	Scaling Of Muscle Volumes In The Upper Extremity
9:45	Stefan Duma <i>Winner of ASB Postdoctoral Young Scientist Award</i>	A Computational Model Of The Pregnant Occupant: Local Uterine Compression Effects The Risk Of Fetal Injury

Gait Simulation

UC 6

Chair: John Chow, Andre Seyfarth

9:30	Taku Komura	Simulating Pathological Gait Using The Angular Momentum Inducing Inverted Pendulum Model
9:45	Saryn Goldberg	The Influence Of Gastrocnemius Geometry On Its Action At The Knee During Stance
10:00	Ajay Seth	A Neuromuscular Tracking Method For Computing Individual Muscle Forces During Human Movement
10:15	Richard R. Neptune	Ankle Plantar Flexor Force Capacity During Toe Walking

Functional Electrical Stimulation

MC 201

Chair: RonTriolo, Bob Kirsch

9:30	Alicia Koontz	Effects Of Functional Electrical Stimulation On Manual Wheelchair Propulsion
9:45	Anirban Dutta	EMG Based Triggering And Modulation Of Stimulation Patterns For FES-Assisted Ambulation - A Conceptual Study
10:00	Jason Gillette	Lower Back FNS For Stabilization During One- And Two-Handed Reaching Tasks
10:15	Dimitra Blana	Feedback Control For A High Level Upper Extremity Neuroprosthesis

Sport 3

MC 202

Chair: Graham Caldwell, Mike Madigan

9:30	Dieter Rosenbaum	Plantar Pressure Distribution Patterns Used As Biofeedback Information Improve Technical Training And Performance In In-Line Speed-Skating
9:45	Gerald Smith	Ski Skating Force Characteristics: Comparisons Across Speed
10:00	Matthew Major	Aggressive Inline Skating: Biomechanics Of Landing And Balancing On A Grind Rail
10:15	Federico Formenti	Biomechanical And Physiological Determinants Of Skiing Locomotion Development

Injury Biomechanics

UC 1

Chair: Jeff Wheeler, Uwe Kersting

9:30	Amber Rath	A Fiber Optic Based Sensor For Measuring Chest And Abdominal Deflection Under Impact Loading
9:45	Robert Catena	Maintenance Of Gait Stability In Concussed College Patients During Dual Tasks
10:00	Sriram Rajagopal	Development And Validation Of The Finite Element Human Body Model For Less - Lethal Ballistic Impacts
10:15	Eric Kennedy	Rupture Pressures For Human And Porcine Eyes Under Static And Dynamic Loading

Thursday, August 4

11:00 AM

Hand and Wrist 1

Waetjen Auditorium

Chair: Trey Crisco, Zong-Ming Li

11:00	William L. Buford	Moment Arms And Moment Potential Balance At The Index MCP Joint
11:15	Jie Tang	Kinematics Of Thumb Opposition
11:30	Sang-Wook Lee	Dynamic Modeling And System Identification Of Finger Movement
11:45	Jaewon Choi	3-Dimensional Kinematic Model For Predicting Hand Posture During Certain Gripping Tasks
12:00	Saurabh Mahapatra	A Mathematical Definition Of Feasible Finger Postures And Movements
12:15	Patrick Salvia	In Vivo Kinematics Of Human Wrist Joints: Combination Of Medical Imaging And Three-Dimensional Electrogoniometry

Diabetic Foot

UC 6

Chair: Peter Cavanagh, Gautham Gopalakrishna

11:00	Robert van Deursen	Functional Outcome In People With Diabetic Neuropathy At Different Stages Of Complications
11:15	Claudia Giacomozzi	Altered Foot Loading In Diabetics. The Role Of Achilles Tendon And Plantar Fascia
11:30	Matthew Cowley	A Prospective Look At Foot Shape And Foot Ulcer Development
11:45	Steve Goske	Reduction Of Plantar Heel Pressures: Insole Design Using Finite Element Analysis
12:00	Sicco Bus	Sub-Calcaneal Fat-Pad Infiltration And Its Effect On Plantar Heel Pressures In The Diabetic Neuropathic Foot
12:15	Brian L. Davis	Metatarsal And Toe Loading Patterns In Diabetic Patients: Possible Role In The Etiology Of Charcot Foot Complications

Gait and Aging

MC 201

Chair: Mike Pavol, Phil Martin

11:00	Chris McGibbon	Neuromuscular Adaptations In Gait With Age And Musculoskeletal Pathology
11:15	Masato Takanokura	Biomechanical Analysis Of Four-Wheeled Walker For An Elderly Person
11:30	Justus Ortega	Elderly Adults Perform Less Limb Work During Walking
11:45	Samantha Winter	The Force-Length Curve Of The Human Gastrocnemius In Vivo.
12:00	Zachary Domire	The Influence Of Seat Height On Sit To Stand In The Elderly: A Simulation Study
12:15	Sukhoon Yoon	Effects Of Short-Term Walking Exercise In Elderly

Running

MC 202

Chair: Julianne Abendroth-Smith, Mark Lake

11:00	Anton Arndt	Transmission Of Controlled External Plantar Impacts Along The Tibia In Relation To Muscular Activity
11:15	Katherine Boyer	Soft Tissue Compartment Response To An Unexpected Surface Change
11:30	Caroline Digby	A Preliminary Assessment Of The Effects Of Foot Type On The Movement Coupling Of The Foot And Shank During The Stance Phase Of Barefoot Running
11:45	Stephen C. Swanson	Kinetic Limitations Of Maximal Sprinting Speed Revisited
12:00	Christopher L. MacLean	Short And Long-Term Influence Of A Custom Foot Orthotic Intervention On Lower Extremity Dynamics In Injured Runners
12:15	Uwe G. Kersting	Impact Forces, Rearfoot Motion And The Rest Of The Body In Heel-Toe Running

Wheelchair Biomechanics

UC 1

Chair: Mary Rodgers, Joe Sommer

11:00	Shun-Hwa Wei	Joint Workspace Of Shoulder and Elbow Associated with Various Axis Positions During Manual Wheelchair Propulsion
11:15	Jennifer L. Mercer	Kinetic Analysis Of Manual Wheelchair Propulsion Over Three Surfaces
11:30	S. van Drongelen	Shoulder Load During Weight Relief Lifting: A Simulation Study
11:45	Sharon Eve Sonenblum	Kinematics Of Lateral Transfers: A Pilot Study
12:00	Philip S. Requejo	Upper Extremity Kinetics During Wheelchair Lever Propulsion
12:15	W. Mark Richter	Biomechanics Of The Flexrim Low Impact Wheelchair Handrim

Thursday, August 4

1:15 PM

ASB Borelli Award Lecture

Waetjen Auditorium

Chair: Kenton Kaufman

1:15	Kai-Nan An	The Evolving Journey of Tendon and Joint Mechanics: Clinical Impacts from Humble Concepts
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Thursday, August 4

2:15 PM

ASB Awards

Waetjen Auditorium

Chair: James Ashton-Miller

2:15	Azita Tajaddini <i>Microstrain award winner</i>	Laser Induced Auto-Fluorescence (LIAF) As A Method For Assessing Skin Stiffness Preceding A Diabetic Ulcer Formation
2:30	Robert A. Siston <i>ASB Clinical Biomechanics Award finalist</i>	In-Vivo Passive Kinematics Of Osteoarthritic Knees
2:45	Wendy Murray <i>ASB Clinical Biomechanics Award finalist</i>	Significance Of Surgical Attachment Length For Hand Function Following Brachioradialis Tendon Transfer
3:00	Eun-Jeong Lee <i>ASB Journal of Biomechanics Award finalist</i>	Modulation Of Passive Force In Skeletal Muscle Fibers
3:15	Trey Crisco <i>ASB Journal of Biomechanics Award finalist</i>	Scaphoid And Lunate Rotations Are Minimized With Wrist Motion Along

Posture and Balance 2

UC 6

Chair: Ge Wu, Robert van Deursen

2:15	Kimberly Ryland	Nonlinear Analysis Of Postural Control In Different Positions And Vision Conditions
2:30	Shirley Rietdyk	Stationary Visual Cues Reduced Centre Of Pressure Displacement In A Dynamic Environment For Experienced Roofers
2:45	Sukyung Park	Optimal Control Model Of Human Postural Scaling With Biomechanical Constraints
3:00	H.J. Sommer III	Postural Control Related To Flexibility Of The Hindfoot When Bearing Heavy Loads
3:15	Kodjo E. Moglo	The Threshold Of Balance Recovery Is Not Affected By The Type Of Postural Perturbation

Rehabilitation Robotics

MC 201

Chair: Jay Alberts, Susan D'Andrea

2:15	Margaret Finley	Upper Extremity Robotic Therapy In Stroke Patients With Severe Upper Extremity Motor Impairment
2:30	H.A.M. Seelen	Evaluation Of Upper Extremity Muscle Activity During Manipulation In Robot-Simulated Task Environments
2:45	Theresa Sukal	Discoordination In Stroke Measured Dynamically Using The ACT-3D Robot
3:00	Gregory Sawicki	Therapist Controlled Powered Lower Limb Orthoses To Assist Locomotor Training
3:15	Gail F. Forrest	The Effects Of Locomotor Training On Neural And Muscle Activation.

Cartilage

MC 202

Chair: Tammy Haut Donahue, Jaw-Lin Wang

2:15	Salvatore Federico	A Non-Linear, Anisotropic, Inhomogeneous Model Of Articular Cartilage
2:30	Doug Bourne	Cartilage Cell Viability After In Vivo Impact Loading
2:45	Tammy L. Haut Donahue	Biochemical Response Of Meniscal Tissue To Altered Loading
3:00	Matthew Koff	T2 Values Of Patellar Cartilage In Patients With Osteoarthritis
3:15	Seungbum Koo	3D Laser Scan Based Accuracy Test Of In-Vivo Cartilage Thickness Measurement From MRI

Instrumentation

UC 1

Chair: Mark Grabiner, Stefan Duma

2:15	Thomas Baer	Calibration And Monitoring Of Piezoresistive Contact Stress Sensor Arrays Using A Travelling Pressure Wave Protocol
2:30	Jennifer Megesi	Validation Of Intramuscular Pressure Sensor In Rat Gastrocnemius
2:45	Philippe Pourcelot	Achilles And Patellar Tendon Loading During Gait Measured Using A Non-Invasive Ultrasonic Technique
3:00	Stephen F. Levinson	Doppler Myography: Ultrasonic Localization Of Acoustic Myographic Signals
3:15	Stephen F. Levinson	Anisotropic Elasticity And Viscosity Deduced From Supersonic Shear Imaging In Muscle

Thursday, August 4

3:45 PM

Poster Session: Musculoskeletal Modeling

UC 201

1	Thomas Pressel	Functions Of Hip Joint Muscles
2	Samuel J. Howarth	Using The Eigenvector To Locate Spinal Instability
3	Martijn Klein Horsman	Morphological Muscle And Joint Parameters For Musculoskeletal Modelling Of The Lower Extremity
4	Akinori Nagano	Development Of A Three-Dimensional Simulation Model Of The Human Whole Body
5	Bing Yu	An EMG Driven Optimization Model For Estimating Dynamic Knee Muscle Forces Without Maximum Muscle Voluntary Contraction Test
6	Elizabeth Chumanov <i>Young Investigator Award finalist</i>	Lateral Hamstrings Are Stretched More Than The Medial Hamstrings During Sprinting
7	Matthew Pain	Determining Subject Specific Torque-Velocity Relationships
8	Chris Mills	Modeling The Gymnast-Mat Interaction During Vault Landings
9	Costis Maganaris	Muscle Fibre Length-To-Moment Arm Ratios In The Human Lower Limb
10	Dimitrios Baltzopoulos	Can The Patellar Tendon Moment Arm Length Be Predicted From Anthropometric Characteristics?
11	Costis Maganaris	Effects Of Isometric And Isokinetic Contractions On The Patellar Tendon Moment Arm
12	Jim Potvin	Hip Stability: Mechanical Contributions Of Individual Muscles
13	Weidong Luo	Can A Single Scale Factor Be Used To Scale Femur Bone Models?
14	Veronica J. Santos <i>Young Investigator Award finalist</i>	Implementing Data-Driven Models Of The Human Thumb Into A Robotic Grasp Simulator To Predict Grasp Stability
15	Daniel Bassett	Predicting Ankle Joint Moments In Subjects With Normal And Abnormal Gait
16	Madhusudhan Venkadesan	The Continuum Of Mixtures Of Feedback And Feedforward Control Strategies Used In Dynamical Dexterous Manipulation Can Be Explored At The Boundary Of Instability
17	Przemyslaw Prokopow	Effects Of Timing Of Muscle Activation On Performance In Vertical Jump

Poster Session: Upper Extremity & Wheelchair

UC 201

18	Jean-Sebastien Roy	The Impact Of Using Different Calculation Methods And Local Coordinate Systems When Measuring 3D Scapular Attitudes.
19	Alicia Koontz	Electromyography Of Trunk Muscles During Wheelchair Propulsion
20	Tomoko Aoki	Prehension Synergies: Effects Of Friction
21	Anne Katrine Blangsted	Changes In Mechano- And Electromyogram During Low-Force Static Contraction In Subjects With Unilateral Epicondylitis Lateralis
22	Sungwoo Koh	Mechanical Properties Of The Shoulder Ligaments
23	Paul Pei-Hsi Chou	Relationship Between Elbow Flexion Angle And Joint Loading Of The Upper Extremity During A Close-Chain Exercise
24	Lin, Hui-Ting	Determining The Resting Position Of The Glenohumeral Joint In Normal Subjects
25	Pernille Kofoed Nielsen	Muscle Tissue Composition, Muscular Tenderness, And Force Production In Subjects With Unilateral Epicondylitis Lateralis
26	Duane Morrow	Assessing Shoulder Kinematics In A Subject With A Spinal Accessory Neuropathy
27	Philippe Favre	An Algorithm For Estimation Of Shoulder Muscle Forces For Clinical Use
28	C.G.M. Meskers	Comparison Between Tripod And Skin Fixed Recording Of Scapular Motion
29	David Suprak <i>Young Investigator Award finalist</i>	Three-Dimensional Shoulder Joint Position Sense
30	Joseph Langenderfer	Variability Of Glenohumeral External Rotator Muscle Moment Arms
31	Geraldo F. S. Moraes	Scapular Muscle Recruitment And Isokinetic Force Production In Individuals With Impingement Syndrome
32	Paula Ludewig	Volumetric Measurement Of The Subacromial Space At The Shoulder
33	Edward Chadwick	Stiffness Measurement Of The Glenohumeral Joint
34	Hisaichi Ohnabe	Evaluation Of Newly Designed Cushion For Electric Power Wheelchair Driving
35	Laurel Kuxhaus	Reproducing Physiologic Moment Arms With An Elbow Simulator
36	Catarina Tainha	Shoulder Kinematics During Clinical Glenohumeral Tests. Differences Between No-Players And Water Polo Players
37	Philip S. Requejo	Wrist Electromyography And Kinematics When Propelling Standard, Compliant, And Power-Assisted Pushrim Wheelchairs: A Pilot Study
38	Kevin A. Rider	Superposition Of Optimal Submovements In Feedback-Controlled Reaching
39	Yasushi Koyama	The Dodge Movement During The Lat Pull-Down Exercise Increased Scapula Rom
40	Po-Chou Lin	Influence Of Seat Height On Pitch Angle And Pushrim Kinetics During A Wheelie Activity
41	Koh Inoue	Estimation For Dynamic Measurement Of Scapula Kinematics
42	Anamaria Acosta	The Effect Of Shoulder Girdle Coordination On Upper Extremity Workspace In Stroke

Thursday, August 4

3:45 PM

Poster Session: Sport 6

UC 201

43	Ernst Albin Hansen	Performance After Prolonged Cycling At Freely Chosen And Optimal Pedal Rate
44	Felipe Pivetta Carpes	Development Of A Computer Application To Calculate Cyclists Front Area In Studies About Aerodynamics
45	Juliana K. Ribeiro	In-Shoe Pressure Analysis During Aero Jump In Different Cadences
46	Xin-Hai Shan	A Method To Diagnosis The Kinetic Characteristic Of The Straight Kick Performance
47	Mathijs Hofmijster	Effect Of Stroke Rate On Mechanical Power Flow In Rowing
48	Aaron Benson	Force Profile Comparison Of Rowing On A Stationary And Dynamic Ergometer
49	Mutsuko Nozawa	Relationship Between Rotational Movement And Translational Movement During The Golf Swing
50	Toyoaki Aoki	Effect Of Sun Light On Surface Temperature Of Artificial Sport Surfaces
51	Shinichiro Ito	Optimal Arm Stroke For Competitive Free Style Swimming
52	Linda McLean	Differences Between Operated And Non-Operated Shoulder Muscle Activation Patterns Recorded During The Dragon Boat "Long And Hard" Stroke
53	Takeshi Asai	Ball Impact Analysis In Football Using FEM Foot Model
54	Wang Hsiang-Hsin	Effects Of Passive Repeated Plyometric Training On Specific Kicking Performance Of Elite Olympic Taekwondo Player
55	Heather Gulgin	Comparison Of Golfers And Non-Golfers Weight-Bearing Hip Rotation Joint Range Of Motion
56	Chiang Liu	Reflex Modulation After Long Term Passive Repeated Plyometric Training
57	Syn Schmitt	Computer Simulation Of A Human Ski Jumper - A Complete Trial
58	Lee Shuei-Pi	A Comparison Of Isokinetic Leg Flexion And Extension Strength In Elite Adolescent Male Track And Field Athletes
59	Long-Ren Chuang	Biomechanical Analysis Of Punching Different Targets In Chinese Martial Arts
60	Fong-Wei Wang	Dynamical Analysis Of Indoor Eight People Make Tug Of War Attack Movements - European Back-Step And Japanese Back-Step
61	Andrew Chapman	Do Kinematics Of The Pelvis And Lower Limb Vary Between Novice And Highly Trained Cyclists?
62	Min-Chung Shen	Kinematic Analysis Of Kolman Acrobatics In The High Bar Exercise
63	Sekiya Koike	Kinetic Analysis Of Each Hand During Golf Swing With Use Of An Instrumented Golf Club
64	Walter Quispe Marquez	A Biomechanical Analysis Of Spike Motion For Different Skill Levels Of Male Volleyball Players
65	Luciano L. Menegaldo	Study Of The Inverse Dynamics Optimal Control Technique In Cycling
66	Tetsunari Nishiyama	The Modification Of Pedaling Skill With Real-Time Representation Of Pedaling Force In Non-Cyclists
67	Laurelyn E. Keener	Comparison Of Dressage Rider Posture When Mounted On Different Horses

68	Jiro Doke	A Simple Mathematical Model Of Karate Front Kick
69	Ines Benkhemis	Influence Of Loads To The Joint Moments And Mucle Force Repartition In Sprint Cycling Test
70	Kjartan Halvorsen	The Influence Of Inclined Support Surface On The Biomechanics Of Eccentric Overload In Squats
71	Bryan K. Lindsay	Predictors Of Success In The 3000M Steeplechase Water Jump
72	Tetsu Yamada	Comparison Of The Knee Joint Between The Skilled And Unskilled Subjects During The Kip Maneuver On The Horizontal Bar
73	Alan Lai	Validation Of A Theoretical Rowing Model Using Experimental Data
74	Chih-Hang Lien	Dynamic Stability Strategy For Elite Judoists In Balance Control For Anterior And Posterior Perturbations
75	Chia-Nen Chan	Elelectromyographic Linear Envelope Analysis Of Golf Swing For Trunk Motion In Asian Players: A Case Study
76	Shu-ting Chen	The Comparsion Of Effectiveness Between Grab Start And Track Start In Competitive Swimming
77	Takayuki Sato	The Difference Of Fitness Level Evaluated From The Mechanical And External Work During Bicycle Exercise
78	Bryan Morrison	The Effect Of Aging On Stroke Parameters In Swimming

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Poster Session: Running

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79	Andrew Chapman	The Influence Of Cycling On Lower Limb Movement And Muscle Activation During Running In Triathletes
80	Alena Grabowski <i>Young Investigator Award finalist</i>	Modeling The Benefits Of Towing During Adventure Racing, Running With Applied Horizontal Force
81	Laura Hild	Can A Runner's Economy And Arm Motion Be Affected By Feedback Training?
82	Jonas R. Mureika	The Effects Of Temperature, Pressure, And Humidity Variations On 100 Meter Sprint Performances
83	Chien-Hua , Chien-Hua	Mechanomyography And Force Relationship During Concentric And Eccentric Contractions Of The Vastus Lateralis In Sprinters
84	Caroline Digby	High-Speed Coupling Characteristics Of The Foot And Shank During The Stance Phase Of Running
85	Daniel Gales	Ground Reaction Force Asymmetries During Sustained Running
86	Abbey Green	Ankle Plantar Flexor Moments Scale To Planning Time During Unexpected Side Step Cut Tasks
87	Ceri Diss	Quantifying Leg Elasticity In Male Veteran Runners
88	William J. McDermott	Mechanical Constraints Do Not Change The Strength Of Locomotor-Respiratory Coordination During Running
89	Samuel Brethauer	The Effects Of An Over-The-Counter Orthotic On Lower Extremity Kinematics In Male And Female Recreational Runners
90	Andre Seyfarth	Walking And Running On Place
91	Joseph Hamill	Intralimb Coordination In Female Runners With Tibial Stress Fractures
92	Carla Sonsino Pereira	Vertical Ground Reaction Force Differences In Runners With Leg Length Discrepancy - Preliminary Results
93	Yasushi Enomoto <i>Young Investigator Award finalist</i>	A Biomechanical Comparison Of Kenyan And Japanese Elite Long Distance Runner's Techniques
94	Lan-Yuen Guo	Lower Extremity Kinematics During Jogging: Influence Of Treadmill Settings

Poster Session: Orthopaedics

UC 201

95	Hsiang-Ho Chen	Biomechanical Comparison Of Fixation Techniques For Double Pars Fractures
96	Sang Min Joo	Computer Aided Pre-Operative Planning Of Fracture Reduction And Deformity Correction In Tibia With Hexapod External Fixator
97	Alexandre Terrier	Evaluation Of An Optimal Cement Thickness Around The Glenoid Component
98	Soojung Moon	Biomechanical Analysis On Design Variables In Relation To The Strength Of Compression Hip Screws
99	Suneel Battula	A Biomechanical Study Of The Pullout Strength Of The Self-Tapping Bone Screws In Osteoportic Bone Material Inserted To Different Depths
100	Ching-Lung Tai	Biomechanical Study In The Optimization Of Different Fixation Modes For A Proximal Femur L-Osteotomy- A Three Dimensional Finite Element Simulation
101	Miranda Shaw	A Pedicle Screw Based Design For An Artificial Facet Joint

102	Anthony Au	Internal Bone Stress Analysis Of Tibial Implant With Incorporation Of Soft Tissues
103	Fred Wentorf	Mechanical Evaluation Of Tension Band Orientation
104	Korboi Evans	Adjacent Load Transfer Following Vertebral Compression Fractures Treated By Cement Augmentation
105	Mike Ehlert	Axial Cyclic And Failure Loading Of Pedicle Screws
106	Larry Ehmke	Stability Of Plate Fixation Constructs With Locked And Non-Locked Screws
107	Thaddeus Thomas	Relating Fracture Energy To Clinical Outcome In Tibial Pilon Fracture Cases
108	Paul Weinhold	Three Versus Four Pegged Glenoid Components: A Biomechanical Evaluation Of Fixation Stability With Cyclical Loading

Poster Session: Sport Injuries

UC 201

109	Natalie Ann Saunders	Differences In Lower-Limb Neuromuscular Control Between Sports Movements Executed In Laboratory And Game Settings
110	Lester Mayers	Landing Forces Produced In Tap Dance
111	Peter Milburn	Bilateral Symmetry In Single Leg Landings
112	Steven Blackburn <i>Young Investigator Award finalist</i>	Development Of A Biomechanically Validated Turf Testing Rig
113	Hsiao-Yun Chang	Muscle Activation Pattern Of Lower Extremity Muscles In Selected Basketball Tasks
114	Thomas W. Kernozek	Changes In Lower Extremity Joint Stiffness With Landing After Fatigue
115	Kurt Clowers	Effects Of Power Generation On Evaluating Impact Attenuation In Landing
116	Thomas W. Kernozek	Rotational Spring And Damper Model Prediction During Landing
117	Eamonn Delahunt	Altered Ankle Joint Positioning During Jump Landing In Subjects With Functional Ankle Instability (FAI)
118	Paula H. Lobo da Costa	Biomechanical Approach To Ballet Movements: A Study Of The Effects Of Ballet Shoe And Musical Beat On The Vertical Reaction Forces
119	Yasuyuki Yoshida	Joint Kinetics And Posture Control During Drop Landings
120	Dieter Rosenbaum	Comparison Of The Effectiveness Of Orthoses Versus Proprioceptive Exercises For The Prevention Of Ankle Injuries In Basketball Players
121	Cheng-Feng Lin	Effects Of Hip And Knee Joint Motions During The Landing Of A Stop-Jump Task
122	John D. Willson	Utility Of The Frontal Plane Projection Angle Of The Knee During Single Leg Squats
123	Michelle Sabick	Differences In Center Of Pressure Movement Between Boys And Girls During One-Footed Landings
124	Scott C. Landry	Neuromuscular Gender Differences Exist During Unanticipated Running And Cutting Maneuvers Within An Elite Adolescent Soccer Population
125	Carla Murgia	Effects Of Proprioception And Strength Training On Injury Prevention In Adolescent And Young Adult Female Dancers
126	Bradley Black	Effects Of Jump Type On Ground Reaction Forces During Landing In Children
127	Radivoj Vasiljev	The Different Influence Of Leg Extensors In Development Peak Of Force In Drop Jump
128	Yang Hua Lin	Effects Of Taping Materials On Isokinetic Performance At The Ankle Muscles

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Poster Session: Sport Injuries (continued)

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129	Wei-Hua Ho	The Difference Of Net Muscle Torque Of Lower Extremity By Using Different Body Segment Parameter In Gymnast
130	Deborah King	Impact Mechanics During Stop And Go Tasks Under Fatigued And Non Fatigued Conditions
131	Brian M. Campbell	The Influence Of Knee And Ankle Bracing On Lower Extremity Kinetics And Kinematics During Jogging
132	Steve McCaw	Joint Torsional Stiffness Contributions To Leg Stiffness
133	Jennifer Jeansonne	Biomechanical Analysis Of Jumping Comparing Low- And High-ACL Injury Risk Groups: Identifying Possible Mechanical Risk Factors
134	Carla Sonsino Pereira	Ankle Muscular Activity During Landing In Volleyball Players With Functional Instability
135	Kristian O'Connor	The Effect Of Lower Extremity Fatigue On Shock Attenuation During Landing
136	Jennifer Earl	Effects Of Exaggerated Pronation And Supination On Lower Extremity Mechanics During A Cutting Maneuver
137	Rhonda Boros	Kinetics And Kinematics Of Males And Females During Two Styles Of Drop Landing
138	Bridget Munro	Quadriceps-Hamstring Muscle Synchrony During Landing Movements: Is It Affected By Movement Direction?
139	Koji Zushi	Changes Of Spring-Like Leg Behavior According To Different Touch Down Velocities In Drop Long Jump

Poster Session: Motor Control

UC 201

140	Kazuyoshi Sakamoto	Evaluation Of Function Of Knee Joint By Physiological Tremor In Lower Leg
141	Maya Kawabata	Influence Of Hardness Of Bed On Hip Joint With Use Of Trunk Tremor
142	Maneesha Arashanapalli	Vibration Alters Proprioception And Dynamic Low Back Stability
143	Pete Shull	Bimanual Motor Control: Biological And Robotic System Learning Via Simultaneous Movement Requirements
144	David Sanderson	Recruitment Of Soleus And Gastrocnemius With Restricted And Unrestricted Ankle Motion
145	Akifumi Kijima	Coordination Change Between Gaze, Head And Hip Due To Early Eye Rotation During Open Cut Maneuver
146	Luc Selen	Impedance Modulation With Precision Demands In Discrete Movements
147	Oliver Wirth	Assessing Regularity In Voluntary Motor Activity With Approximate Entropy
148	Huang Yi Ming	The Effect Of Fatigue On The Control Of Targeted Isometric Dorsiflexion In Humans
149	Germano T. Gomes	Quantifying Upper Limb Motor Control: The Peg In Hole Test
150	Christopher Hasson	A Musculoskeletal Model Of Postural Control At The Ankle
151	Jingzhi Liu <i>Young Investigator Award finalist</i>	Motor Control Strategy To Manage Central Fatigue
152	Sun Wook Kim	Preparation To A Predictable Perturbation During Multi-Finger Force Production
153	Hiroaki Hobara	Central And Peripheral Control Of Muscle Stiffness In Hopping

154	Ming-feng Kao	The Validity Of Active Squat Keen Joint Proprioception
155	Kathy Jagodnik	Proportional Derivative Control for Planar Arm Movement
156	Radhika Kotina	Modeling and Control Of Human Postural Sway

Poster Session: Clinical and Functional Movement Analysis UC 201

157	Wendy Gilleard	The Effect Of A Reference Posture On The Relationship Between Relaxed Calcaneal Standing Measurement And Frontal Plane Rearfoot Motion During Walking In Patellofemoral Pain Syndrome Subjects
158	Steven Jones	The Gait Initiation Process In Unilateral Lower-Limb Amputees Stepping To A New Level
159	Wendy Gilleard	Effect Of Arm Use On Head And Trunk Segment Motion When Rising From A Chair
160	Mirko Brandes	Activity Assessment And Clinical Gait Analysis After Malignant Bone Tumors Treatment With Reconstruction Of Femoral And Tibial Defects
161	Mark Creaby	Are Structural And Gait Biomechanics Indicative Of Tibial Stress Fracture Risk?
162	Mirko Brandes	Basic Gait Parameters Of Healthy And CP Children Assessed By Accelerometry
163	Max Kurz	An Inverted Pendulum Model Indicates That Parkinson's Disease Results In Altered Neuromuscular Stiffness For Controlling Gait
164	Melissa Scott-Pandorf	The Effect Of Peripheral Arterial Disease On Gait
165	Ryo Kanda	Development Of A Web-Based Decision Support System For Acupuncture Treatment
166	James Wakeling	Muscle Dysfunction During Walking In Children With Cerebral Palsy
167	Shyi-Kuen Wu	The Kinetic Changes Of Gait Across Calf Myofascial Intervention
168	Yu-Hsiang Nien	The Ground Reaction Force And Electromyographic Patterns Of Tai Chi Gait
169	Andrej Olenšek	Toe-Walking In Intact Individuals Arising From Emulated Contractures Of Soleus, Gastrocnemius And Hamstring Muscles
170	Urs Wyss	High Range Of Motion Activities Of Daily Living: Differences In The Kinematics Between Hong Kong And Chennai, India Subjects
171	Marietta van der Linden	The Influence Of Subject Characteristics And Joint Kinematics On Function And Quality Of Life In Patients With Osteoarthritis Prior To Total Knee Replacement
172	Ge Wu	Control Of Center Of Pressure During Tai Chi Movement
173	Stephanie J. Nogan	Gait Biomechanics In An Obese Gastric Bypass Surgery Population: Preliminary Results
174	Kevin M. Cooney	Convergent Validity Of Goniometric And Motion Capture Techniques Used To Measure Tibial Torsion
175	Bih-Jen Hsue	Optimal Strategy Of Cane Use During Stair Ascent
176	L.W. Sun	Movement Coordination Between The Lumbar Spine And Hip When Putting On A Sock
177	Hsiu-Chen Lin	Biomechanics Of The Lower Limb During Stair Locomotion In Subjects With Anterior Cruciate Ligament Reconstruction
178	Houng-Chaung Hsu	Influence Of Functional Knee Braces On Lower Limb Mechanics During Stair Locomotion In Patients With Anterior Cruciate Ligament Deficiency

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Poster Session: Clinical and Functional Movement Analysis (continued) UC 201

179	Chen-Yu Lo	Hip And Knee Joint Moment Analysis During Obstacle Crossing In Patients With Unilateral Total Knee Replacement
180	Samuel R. Ward	Patella Alta Is Associated With Patellofemoral Malalignment
181	S. Lee Hong	Dynamical Differences Between Normal And Stereotypic Body Rocking
182	Ruxandra Marinescu	Pediatric Gait Analysis: A Call For Standardization
183	Catherine Stevermer	Investigation Of Sit-To-Stand Performance For Individuals After Total Knee Arthroplasty
184	Victoria Chester	Gait Patterns Of Children With Hypotonia
185	Nicole A. Wilson	Bracing Alters Patellofemoral Contact Mechanics During The Gait Cycle: A Dynamic Biomechanical Study
186	Bee-Oh Lim	Stepping-Over Gait Characteristics In Children With Down Syndrome
187	Nathalie Crevier-Denoix	Effects Of Corrective Shoeings On The Equine Superficial Digital Flexor Tendon Load, Evaluated By A Non-Invasive Ultrasonic Technique

Poster Session: Falling and Fall Prevention

UC 201

188	Hyun Gu Kang	Postural Local Dynamic Stability Is Not Predictive Of That During Locomotion
189	Bing-Shiang Yang	Adaptive Changes In Stepping Up And Onto Laterally-Compliant Structures: Age Difference In Healthy Males
190	Chou You-Li	The Correlation Between Energy Absorption Ratio And Pain Score Of The Upper Extremity Under Different Fall Heights
191	Heng-Ju Lee	Dynamic Stability And Energy Efficiency During Different Self-Selected Walking Speeds
192	Karrie L. Hamstra-Wright	Skill Acquisition Occurs During Fall-Preventive Motor Response Training
193	Karen L. Reed-Troy	Wrist Kinetics During Impact Are Affected By Hand Symmetry
194	Lloyd R. Wade	Gait Kinematics On An Elevated Inclined Surface
195	Youngho Kim	Contributions Of Lower Limb Joints To Support The Body In Unexpected Step-Down Walking
196	April Chambers	Anticipation Of Slippery Floors: Muscle Onsets And Co-Contraction Of The Stance Leg
197	Chien-Ju Lin	Control Of Stability During Slope Lateral Walking
198	Kurt DeGoede	Reaction To A Loss Of Balance In Healthy Menopausal-Aged And Young Women
199	Alaa A. Ahmed	An Analysis Of Losses Of Balance During Tandem Stance On A Narrow Beam
200	Peter Davidson	Arm Fracture In Children's Falls
201	Noriyuki Yamamoto	The Characteristics Of Gait Pattern On The Slippery Surface

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Poster Session: Biomechanics of Jumping

UC 201

202	Ikko Omura	Analysis Of The Approach Run And The Takeoff In The Japanese Junior Long Jumpers
203	Chenfu Huang	Optimal Extra Weight On Hands Enhance Standing Jump Performance
204	Yu Liu	Application Of Artificial Neural Network To Predict The Joint Torque Of Lower Limbs Using The Parameters Of Ground Reaction Force During Vertical Jump
205	Sarah E. Kruger <i>Young Investigator Award finalist</i>	The Effect Of Load Scaling On The Coordination And Performance Of Countermovement Jumps.
206	Hiroyuki Koyama	Immediate Effects Of An Inclined Board As A Training Tool For The Takeoff Motion Of The Long Jump
207	Shinsuke Yoshioka	Effect Of Bilateral Asymmetry Of Lower Muscle Forces On Vertical Jumping Height: A Simulation Study
208	Yuya Muraki	Kinematic Analysis Of The Preparatory And Takeoff Motion In The Long Jump
209	Kenji Ohisshi	The Relationship Between Leg Length And Velocity Of Center Of Gravity During Contact Phase In The Long Jump
210	Saori Hanaki	Quantification Of Energy Absorbed By The Lower Extremity Depends On Endpoint Of The Impact Phase
211	Kathy J. Simpson	Approach Velocity Profiles Of Elite Male And Female Lower-Limb Amputee Long Jumpers
212	Witaya Mathiyakom	Generation Of Forward Angular Impulse In Tasks With Backward Translation
213	Jill McNitt-Gray	Regulation Of Reaction Force Direction And Angular Impulse During Jumping Tasks Via Redistribution Of Knee And Hip Net Joint Moments

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Poster Session: Prosthetics and Orthotics

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214	Curtis S. To	A Hydraulic Approach To The Development Of A Variable Reciprocating Hip Mechanism For The Reciprocating Gait Orthosis
215	Margrit R. Meier	Obstacle Course Performance: Comparison Of The C-Leg To Two Conventional Knees
216	Glenn K. Klute	Lower Limb Amputee Activity Uneffected By Shock-Absorbing Pylon Or C-Leg Knee
217	Bae Tae Soo	How Much Do The Hip Abductors Contribute To The Gait Stability For Amputee With A Prosthesis?
218	Kang Sung Jae	Kinetic Gait Analysis Of Powered Gait Orthosis Using Fuzzy Logic Controller
219	Michael S. Orendurff	C-Leg Knees Do Not Improve Stance Phase Knee Flexion Or Walking Efficiency In Older Transfemoral Amputees
220	Jeremy D. Smith	Intersegmental Dynamics Of The Swing Phase Of Walking In Trans-Tibial Amputees
221	Zaineb Bohra	Neuromuscular Adjustments To Hopping With An Elastic Ankle-Foot Orthosis
222	Stephen Cain	Motor Adaptation To A Powered Ankle-Foot Orthosis Under Foot Switch Control
223	Dewen Jin	Investigation On Slip Danger To Trans-Femoral Prosthesis User
224	Jiankun Yang	Lower Extremity Muscle Activities Of Trans-Femoral Amputees When A Slip Occurs In Gait
225	Slavyana Milusheva	Virtual Models And Prototype Of Individual Ankle Foot Orthosis
226	Siobhan Strike	One-Foot Vertical Jump With Approach In Unilateral Transtibial Amputees
227	Wei-Ching Hung	The Finite Element Analysis Of Interface Stresses Between The Foot And Ankle-Foot Orthoses

Poster Session: Vascular Mechanics and Fluid Flow

UC Atrium

228	Fariborz Alipour	Measurement Of Turbulence In Glottal Flow
229	Zhi-Yong Li	Identifying Vulnerable Plaques Using MRI-Based Finite Element Analysis
230	Po-Kae Fung	Cardiac Catheter With Variable Head Curvature Actuated By Ipmc (Ionic Polymer-Metal Composite)
231	Jeong Chul Kim	The Paraquat Adsorption Pattern And Hemodynamic Properties Of Charcoal Column In Hemoperfusion
232	Yihkuen Jan	A Time-Frequency Approach Using Wavelets To Study Week-To-Week Variability In Blood Flow Oscillations
233	Zaher Kharboutly	Blood Flow Simulation In An Arterio-Venous Fistula
234	Alejandro Roldan	Simulation Of Blood Flow And Deformations Of Mechanical Heart Valves Using Boundary Integral Techniques
235	James Furmato	Repeatability Of DRT4 Lase Dopler Microvascular Measurements
236	Henry Yu Chen	3-D Finite Element Models Of Arterial Clamping With Fluid-Structure Interactions - A Step Toward Simulating Cardiovascular Surgery
237	Rachamadian Wulandana	Modeling Cerebral Aneurysm Formation And Associated Structural Changes

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Poster Session: Instrumentation

UC Atrium

238	Joong Yull Park	Numerical Analysis On Bipolar Hepatic Radio-Frequency Ablation
239	Anita Chan	A New Portable 3-D Gyroscope System For The Evaluation Of Upper Limb Function
240	Elizabeth Ann Hassan	Comparison Of Upperlimb Kinematics Collected By Electromagnetic Tracking Versus Digital Camera Systems In A Gait Analysis Lab
241	Véronique Feipel	Use Of Strain Gauge In The Evaluation Of The Constraint Of Tibio-Femoral Joint In Dynamic Movement: Development, Feasibility And First Results
242	Higa Masaru	Measurements And Modeling Of The Descending Colon
243	Peter Dabnichki	Emotionally-Responsive Clothing For Leisure And Exercise Activities
244	Gail Perusek	Exercise Countermeasures Laboratory At NASA Glenn Research Center - A New Ground-Based Capability For Advancing Human Health And Performance In Space
245	Peter R. Cavanagh	Lower Extremity Loading During Entire Days Of Space Flight
246	Cody Bliss	An Instrumented Scaffold To Monitor Loading Of Cartilage In The Knee Joint
247	Metin Yavuz	A Comparison Of Various Digital Filtering Techniques Applied On Plantar Surface Pressure and Shear Data

Poster Session: Cellular Biomechanics

UC Atrium

248	Shigehiro Hashimoto	Measurement Of Red Blood Cell Deformability With Counter Rotating Rheoscope
249	Diane R. Wagner	Cytoskeletal Tension Enhances Osteogenic Differentiation Of Adipose-Derived Mesenchymal Cells
250	T.S. Keller	Influence Of Pericellular Matrix On Cell Strains In The Intervertebral Disc
251	Brandon J. Ausk	Exploring Mechanical Loading Induced Ca ²⁺ Oscillations In Osteocytes
252	Rachna Sah	Cell Deformation In Response To Local Matrix Strain
253	Sylvie Wendling-Mansuy	Cytoskeleton Dynamical Behavior Approched By A Granular Tensegrity Model

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Poster Session: Impact Biomechanics

UC Atrium

254	Erica Doczy	Neck Muscle Activity During Short Duration Impacts
255	Jui-Yi Tsou	The Applied Force Patterns Of Chest Compression During Cardiopulmonary Resuscitation
256	Zhifeng Kou	A Comprehensive Approach To Studying Mild Traumatic Brain Injuries In Motor Vehicle Crashes
257	David E McNeely	Cumulative Head Accelerations In College Football Players Differ By Position
258	Lars Janshen	Muscular Stabilisation Of The Head In Car Collisions
259	Sylvie Wendling-Mansuy	Evidence For The Involment Of Muscular Pre-Activation In Impact Loading And In Shock Wave Transmission
260	Elizabeth Drewniak	Do Mechanical Properties Of Chest Protectors Correlate With The Incidence Of Ventricular Fibrillation In A Sudden Death (Commotio Cordis) Swine Model?
261	Cheng-Yu Wu	Computer Simulation Of Motorcycle-Car Accident
262	Wunching Chang	Injury Incidence And Footwear Satisfaction Of Male Competitive Ballroom Dancers
263	David Raymond	A Parametric MADYMO Analysis For The Determination Of Seat Belt Usage In A Frontal Collision
264	Mark B. Sommers	An Organotypic Model Of Traumatic Brain Injury Caused By Acceleration-Induced Shear Strain
265	David Raymond	Occupant Kinematic Analysis Of An Unbelted Minivan Passenger: A Free Body Approach
266	Darrin Richards	Repetitive Head Loading: Accelerations During Cyclic, Everyday Activities
267	Abir Chakraborty	Impact Response Analysis Of Thorax By The Thin-Layer Method
268	Mariusz Ziejewski	Modified Methodology To Determine Head Acceleration

Poster Session: Spine 3

UC Atrium

269	Munier Hossain	A Biomechanical Model Of Sacro-Iliac Joint Dysfunction As A Cause Of Low Back Pain
270	Takahiro Ishii	In Vivo 3D Intervertebral Motion Analysis Of The Cervical Spine In Lateral Bending Using 3D-MRI
271	Veronique Feipel	Head Repositioning Accuracy In Patients With Whiplash-Associated Disorders
272	Christine Herrmann	Increase In Amplitude Of Paraspinal Muscle Reflexes Following Lumbar Extensor Fatigue
273	Michael W. Olson	Activation Patterns Of Trunk Muscles During Cyclic Flexion-Extension
274	Kyungsoo Kim	Increase Of Lumbar Spinal Stability Under Follower Load In Sagittal Plane
275	Erik Cattrysse	In Vitro 3D Arthrokinematic Analysis Of Coupled Motions In The Atlanto-Axial Joint During Axial Rotation And Lateral Bending
276	Melanie Bussey	Motion Characteristics Of The Innominate-Hip Complex
277	Naira Campbell-Kyureghyan	Variation In Average And Peak Lumbar Disc Stresses By Level During Flexion Using A Combined Experimental And Finite Element Approach

278	Hongmei Jin	Measurement Of Difference Between Left And Right Rib Lengths On Scoliosis
279	Scott MacKinnon	Motion Induced Interruptions Increase Thoracolumbar Kinematics
280	Angela Viegas Andrade	Functional And Structural Cervical Spine Dysfunctions With Temporomandibular Disorders
281	Sam Augsburger	Analysis Of Inter-Segment Spine Kinematics During Trunk Motion
282	Paul J. Moga	Prevalence Of Back Pain In Seven Sports Based On Self-Reporting By A Sample Of 2268, 8-To-18 Year Old Adolescent Athletes
283	Jamie R. Williams	Comparison Of The Biomechanical Response Of A Lumbar Motion Segment To Loading And Unloading When Loads Are Applied Suddenly And At Normal Lifting Speeds
284	Bonnie Y.S. Tsung	Influence Of Posterio-Anterior Mobilization On Different Level Of The Spine
285	Steve Brown	Muscle Force-Stiffness Characteristics Influence Joint Stability: A Spine Example
286	Véronique Feipel	Upper Cervical Spine Modelling: In Vitro 3D Kinematics
287	Wafa Skalli	Inter Individual Variation In Trunk Muscles Geometry Of Asymptomatic Subjects In Standing Position.
288	Christian Larivière	Back Muscle Fatigue During Submaximal Intermittent Isometric Contractions: The Influence Of Neuromuscular Activation Patterns
289	Jim Dickey	Novel Approach For Studying Human Response To Whiplash-Like Perturbations
290	Chad A. Sutherland	The Accuracy Of Using Postural Assessment To Determine Cumulative Exposure
291	Ryan Milks	Biomechanical Comparison Of Adjacent Level Segmental Motion In The Cervical Spine With Varying Degrees Of Lordotic Alignment
292	L.W. Sun	The Accuracy Of Surface Measurement For Osteoporotic Spine Motion Analysis
293	Jaap van Dieen	Modeling Of Pelvis And Thorax Rotations In Healthy And Pathological Gait
294	L.W. Sun	Automatic Measurement Of Lumbar Spinal Kinematics From Lateral Radiographs
295	Jaap van Dieen	Can Repetitive Shear Loading Of Spinal Motion Segments Cause Disc Injury?

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Poster Session: Muscle

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296	Can A. Yucesoy	Acute Effects Of Intramuscular Aponeurotomy Assessed By Finite Element Modeling
297	Sharon Bullimore	Effect Of Stretch Or Shortening Amplitude On Subsequent Isometric Muscle Force
298	Kazuyuki Mito	Influence Of Skin Temperature On Mechanomyogram Of M. Biceps Brachii
299	Huub Maas	In Vivo Fascicle Length Of Cat Medial Gastrocnemius And Soleus Muscles During Slope Walking
300	Ian Loram	Measuring Continuous Changes In Human Muscle Length, In Vivo, Using Ultrasound
301	Laura Frey Law	Accuracy Of Three Mathematical Models vs. Human Trained Paralyzed Muscle
302	Huub Maas	The Origin Of Mechanical Interactions Between Adjacent Synergists In Rat
303	Phu Hoang	Non-Invasive Measurement Of Passive Length-Tension Properties Of Human Gastrocnemius Muscle Fascicles, Tendons, And Whole Muscle-Tendon Units In Vivo
304	Tyler Brown	The EMG-Torque Relationship Of The Knee Extensors During Acute Fatigue
305	Hiroshi Arakawa	Relationship Between Moment-Joint Angle Characteristics Of Knee Flexion And Architecture Of Hamstrings Muscles In Human
306	Toshiaki Oda	In Vivo Muscle Fiber Kinetics During Tetanic Contraction
307	Gregory Sutton	Neuromodulation Changes The Biomechanics And Capabilities Of The Aplysia Feeding Muscle I2
308	Kazushige Sasaki	Shortening Velocity Of Human Plantar Flexors In Vivo And Its Relation To Contraction Intensity And Knee Angle
309	Li Le	In Vivo Determination Of Muscle Architecture Parameters By Ultrasonography: Applications To The Brachialis Muscle Of Normal Subjects And Persons After Stroke
310	Norihide Sugisaki	Behavior Of Aponeurosis And External Tendon Of Medial Gastrocnemius Muscle During Dynamic Plantar Flexion Exercise
311	Nadja Schilling	3D-Fiber Type Distribution In Back Muscles In Small Mammals
312	Toshiyuki Kurihara	Three-Dimensional Architecture Of Human Gastrocnemius And Tibialis Anterior Muscles During Isometric Actions
313	Sampath Gollapudi	Temperature-Dependent Mechanical Properties Of Human Soleus Muscle Fibers
314	Timothy J. Brindle	Sonographic Measures Of Gastrocnemius Length With Two-Joint Passive Movements
315	Lei Cui	Recruitment Order Has Little Effect On The Short-Range Stiffness
316	Yoshiho Muraoka	Heterogeneity Of Change In Muscle Circulation Among Synergists During Dynamic Muscle Action
317	Taku Wakahara	Effects Of Knee Joint Angle On The Force-Length And Velocity Characteristics Of Gastrocnemius Muscle

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Poster Session: Posture and Balance

UC Atrium

318	Yun Wang	Stepping From A Narrow Support
319	Kevin Pline	Effects Of Lumbar Extensor Fatigue And Circumferential Ankle Pressure On Ankle Joint
320	Alan Walmsley	Measures Of Postural Stability During Quiet Stance
321	Cristina Sa	Comparative Balance Analysis Between Indoor Climbing Individuals And Control Using Posturography Test
322	Chris Hass	The Relationship Between Knee Extensor Strength And Balance In Parkinson's Disease
323	Attila A. Priplata	Noise-Enhanced Balance Control: The Worse You Are The Better You Get
324	Ellen Rogers	Paraspinal Reflex Behavior As A Function Of Trunk Posture
325	Wen-Chieh Yang	Development Of The Portable Posture Training Device
326	Ge Wu	Postural Control Strategies In People With And Without Peripheral Neuropathy - A Neural Network Approach
327	Clarice Tanaka	Postural Control Under Visual And Proprioceptive Perturbations During Double And Single Limb Stance
328	Haruhiko Sato	Postural Sway On A Sliding Platform: Assessing Spatial And Temporal Stability
329	Clarice Tanaka	Postural Control In Skilled Athletes In Response To Unexpected Perturbation
330	Jeffrey Schiffman	Soldiers' Loads Affect Random Walk Of Center Of Pressure
331	Alessandro Telonio	Effect Of Perturbation Direction On The Threshold Of Balance Recovery
332	Chiung Ling Chen	The Body Center Of Mass Displacement During Various Types Of Support Surface Perturbation
333	Liliam F. de Oliveira	Anticipation Mechanism And Influence Of Fatigue In Mediolateral Stabilogram
334	Kei Masani	Smaller Sway During Quiet Stance Attributes To Effective Use Of Body Velocity
335	Koichi Shinkoda	Characteristics Of Standing And Anterior Tilting Postures In Relation To The Time Of Day
336	Michelle Heller	The Effects Of External Weight Carriage On Postural Stability
337	Jianhua Wu	Fractal Dynamics Of Human Stabilogram In Quiet Stance
338	Marc-Andre Cyr	Effect Of Recovery Restrictions On The Threshold Of Balance Recovery - Preliminary Results
339	Isabelle Patenaude	A Paradigm To Assess Electromyographic And Kinematic Responses During Anteroposterior Surface Translations In Sitting Following Whiplash Injuries
340	Mark Musolino	Postural Sway Adaptation During Initial Exposure To Periodic And Non-Periodic Optic Flow
341	Esther Kim	Effects Of Arch Height And Accomodation On Postural Stability
342	Hugo Centomo	Postural Control And Postural Mechanisms In Obese And Control Children.

Thursday, August 4

3:45 PM

Poster Session: Bone

UC Atrium

343	Thomas Pressel	Mechanical Properties Of Canine Trabecular Bone
344	Andrew Briggs	Distribution Of Bone Mineral Density In Thoracic And Lumbar Vertebrae: An Ex Vivo Study Using Dual Energy X-Ray Absorptiometry (DXA)
345	Sylvie Wendling-Mansuy	Regeneration Of Skeletal Tissues On Joint
346	Sylvie Wendling-Mansuy	Bone Remodeling Model Of A Basic Multicellular Unit
347	Amy Johnson	A Synthetic Model For Mechanical Evaluation Of Vertebral Bone
348	Mary Lou Bareither	Bone Mineral Density Of The Proximal Femur Is Not Related To Dynamic Joing Loading During Locomotion
349	GuoXin Ni	Nanoindentation Study Of Interfaces Between Strontium-Containing Hydroxyapatite Bone Cement And Bone In A Rabbit Hip Replacement Model
350	Won Joo	Cross-Modal Effect Of Damage On Cortical Bone Strength
351	Arzu Gul Tasci	Biomechanical And Histological Evaluation Of Estrogen, Raloxifen, Vitamin K2 And Their Combinations In The Treatment Of Osteoporotic Bone
352	J.E. Brouwers	Resonant Frequency Shifts In Osteotomised Goat Tibiae
353	Hans A. Gray	Validated Finite Element Model Of A Composite Tibia
354	Annie Ming-Tzu Tsai	Effect Of Single Pulsed Electromagnetic Fields Stimulation On The Proliferation Of Mesenchymal Stem Cells
355	Brandi Row	Load-Specific Relationships Between Muscular Power And Bone Mineral Density
356	Cheryl Dunham	Mechanical Properties Of Cancellous Bone Of The Distal Humerus
357	Ger Reilly	Sequential Labelling And Acoustic Emission Analysis Of Damage Occurring In Cortical Bone During Indentation Cutting
358	Jaw-Lin Wang	Regional Variation Of Bone Strain Creep Of Vertebral Body During Repetitive Loading - An In Vitro Porcine Biomechanical Model
359	Renfeng Su	Bone Mechanics From Finite Element Modeling And Micro-Computed Tomography: Validation Of An Orthotropic Material Model With Fused Deposition Modeling
360	Boon Horng Kam	In Vivo Micro CT Scanning Of A Rabbit Distal Femur
361	Jessica Goetz	In Vitro Validation Of Thermal Finite Element Analysis Of Cryoinsult Delivery For Emu Femoral Head Necrosis
362	Stacey A. Meardon	The Effects Of Mechanosensitivity On The Prediction Of Bone Formation Rate
363	Roland Steck	Bridging Organ- And Tissue Level Computational Models Of Bone To Improve Load-Induced Fluid Flow Predictions
364	Nils Goetzen	The Mouse As A Model Organism For Human Skeletal Diseases - A Biomechanical Study
365	Wafa Tawackoli	Vibrational Analysis Of Normal And Osteopenic Trabecular Bone Using Rapid Prototype Duplicates
366	Junghwa Hong	Measurement Sysytem With Nano-Resolution Of Microscopic Bone Propery

367	Eric Anderson	Novel In Silico Virtual & Scaled Up Physical Model Platform To Bridge Gaps In Understanding In Situ Flow Regimes at Multiple Length Scales In Bone
368	David Hudson	Lower Limb Structure And Function Predict Bone Density Of The Proximal Tibia

Thursday, August 4

3:45 PM

Poster Session: Muscle and Exercise

UC Atrium

369	Kristina Calder	Practice Distribution And The Acquisition Of Maximal Isometric Elbow Flexion Strength
370	Hiroshi Akima	Neuromuscular Adaptation In Human Calf After Disuse Evaluated By Muscle FMRI And EMG
371	Francisco J. Vera-Garcia	Trunk And Shoulder Muscle Response Comparing One Repetition Maximum Bench And Standing Cable Press
372	Ken B. Geronilla	Age Affects Eccentric Muscle Performance In Vivo During A Chronic Exposure Of Stretch-Shortening Cycles
373	Marco Aurelio Vaz	Long Term Model Of Botulinum Toxin-Induced Muscle Weakness In The Rabbit
374	Sean P. Flanagan	The Effect Of Movement Speed And External Load On Joint Contributions During Lower Extremity Extensions
375	Wen-Lan Wu	The Effects Of Periodized Complex Training Programme On Military Physical Fitness And Fighting Ability
376	Phu Hoang	Passive Length-Tension Properties Of Human Gastrocnemius Change After Eccentric Exercise
377	Kenneth Meijer	A Cross Sectional MRI Study Of The M. Rectus Femoris Morphology In Cyclists, Runners And Sprinters
378	Ben Meyer	A Comparison Of Hip Extension Torques In Conventional And Split Squat Exercises
379	William Bertucci	Validity Of The New Powertap Powermeter And Axiom Cycle Ergometer When Compared With An SRM Device
380	Gustavo Nunes Tasca Ferreira	Impact Of Flexibility On Muscular Performance Of The Knee
381	Jean L. McCrory	Acute Muscle Adaptations To A Resistance Exercise
382	Tetsuro Muraoka	Effect Of 20 Days Of Bed Rest On Passive Mechanical Properties Of Human Gastrocnemius Muscle Belly
383	Dean Hay	Human Bilateral Deficit During Dynamic, Multi-Joint Leg Press Movement
384	Mingfeng Kao	The Validity Of Active Squat Keen Joint Proprioception Test
385	Michael Duffey	Fatigue Effects On Bar Kinematics During The Bench Press
386	Raghavan Gopalakrishnan	Effects Of Long-Term Space Flight On Muscle Volume

Thursday, August 4

3:45 PM

Poster Session: Hand and Wrist

UC Atrium

387	Fan Gao	Does Human Hand Perform Like A Robotic Gripper? -- An Examination Of Internal Forces During Object Manipulation
388	Xun Niu	Effects Of The Grasping Force Magnitude On The Individual Digit Forces During Prehension With Five Digits
389	Fong-Chin Su	Thumb Muscle Forces In Jar Opening
390	Pablo-Jesús Rodríguez-Cervantes	A Virtual Tool For The Clinical Planning Of The Ulnar Palsy Treatment
391	Chris Ugbohue	Kinematics Of Mouse Scrolling
392	Ajay Gupta	Factors Affecting Lunate's Sagittal Alignment
393	Jennifer Di Domizio	The Effects Of Wrist Splinting On Muscle Activity During A Hand Grip Task
394	Asimakis Kanellopoulos	An Investigation Of External Loading Patterns Applied During Maximal Grip
395	Wei Zhang	Accurate Production Of Patterns Of The Total Moment By A Set Of Fingers
396	Warren G. Darling	Perception Of Hand Motion Direction Uses A Gravitational Reference
397	Jeremy Mogk	Modeling Extrinsic Finger Flexor Tendon Kinematics
398	Jae Kun Shim	Enslaving Effects Of Finger Movement On Pressing Forces Of Other Fingers
399	Jessica Woodworth	Impact Of Restricted Pip Joints On MCP Joint Motion In The Human Hand

Thursday, August 4

3:45 PM

Poster Session: Joint Mechanics

UC Atrium

400	James Cubillo	Numerical Analysis Of A Femur Resurfacing Cup
401	Natasha Lee Shee	In-Vitro Testing Of Knee Joints Using Robotics: Computer Programming Theory
402	Ralph Howald	Factors Affecting The Cement Penetration Of A Hip Resurfacing Implant: An In-Vitro Study
403	Raed Itayem	The Role Of The Femoral Stem In The Stability Of A Metal On Metal Hip Resurfacing Implant. An RSSA Study
404	Lijkele Beimers	Subtalar Joint Kinematics In Healthy Individuals Using Computed Tomography
405	Thomas J. Withrow	Lack Of Hamstring Tension Causes Increased ACL Strain In A Simulated Jump Landing
406	Shahram Amiri	A Simplified Topology For The Tibial Plateau And Meniscal Surfaces And The Role Each Of Its Geometric Features Play In Guiding The Passive Motion
407	Mariana Kersh	Deformation Patterns From A Pre-Clinical Patellar Component Test
408	Andrew R. Fauth	3D Geometrical Optimization Of The Talar Dome
409	Hannah J. Lundberg	Quantifying Fluid Ingress To The Joint Space During Total Hip Implant Subluxation
410	Andrew R Hopkins	Development Of An FE Model Of Uni-Compartmental Knee Replacement
411	Matthew Moran	Computational Assessment Of Anteroposterior Laxity Following Partial PCL Release In Cruciate-Retaining TKR
412	Jihui Li	Initiation And Propagation Of Fatigue Microcracks From A Defect In A Cemented Total Hip Arthroplasty
413	Elena Varini	Primary Hip Stem Micromotion Assessment: Correlation Between Rasp And Stem Stability
414	Frances T. Sheehan	The Talocrural And Subtalar Helical Axes Are Not Fixed During Plantarflexion
415	Robert H. Deusinger	Comparison Of Arthrometer (Passive) And Functional Activity (Active) Anterior Tibial Displacements
416	Ajit Chaudhari	Patellar Ligament Insertion Angle Influences Quadriceps Use During Stair Climbing: Effect Of An Anterior Cruciate Ligament Deficit
417	Jacob Scott	The Effect Of Tibiofemoral Loading On Proximal Tibiofibular Joint Motion

Friday, August 5

8:30 AM

Keynote Lecture

Waetjen Auditorium

Chair: Ton van den Bogert

8:30	Martyn Shorten	Cushioning: Mechanics and Biomechanics of Attenuating Loads on the Human Body
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Friday, August 5

9:30 AM

Rehabilitation

Waetjen Auditorium

Chair: John Jeziorowski, Glenn Klute

9:30	Li Li	Body Weight Support System Influence On The Patterns Of Vertical Forces Applied To The Body
9:45	Janessa Drake	Do Exercise Balls Provide A Training Advantage For Trunk Extensor Exercises? A Biomechanical Evaluation.
10:00	Tine Alkjaer	Biomechanical Analysis Of The Walking Pattern In Healthy Subjects With And Without Rollator
10:15	Janice Flynn	Trunk Muscle Activation Patterns Comparing Cable Press And Body-Blade Exercises

Motor Control – Upper Extremity

UC 6

Chair: Pat Crago, Andy Karduna

9:30	Jae Kun Shim	Prehension Synergies: Trial-To-Trial Variability And Principle Of Superposition During Static Prehension In Three Dimensions
9:45	Yin Fang	Different Motor Planning During Eccentric And Concentric Elbow Muscle Contractions
10:00	D.A. Kistemaker	An Intermittent EP-Model For Fast Point-To-Point Movements
10:15	Eric Perreault	Influence Of Voluntary Posture Selection On Endpoint Stiffness

Muscle Adaptation

MC 201

Chair: Véronique Feipel, Paul Sung

9:30	Robert G. Cutlip	Characterization Of Changes In Eccentric Work In Vivo During A Chronic Exposure Of Stretch-Shortening Cycles: Age Effects
9:45	Timothy A Butterfield	The Interaction Between Surface Grade And Exercise Duration For Serial Sarcomere Number Adaptations Following Treadmill Running In Rats
10:00	Sherry Di Jorio	Mitochondrial Adaptation During Rehabilitation And Its Importance In Musculoskeletal Modeling
10:15	Victor Valderrabano	Fiber Selective Muscle Atrophy In Ankle Arthritis

Knee Replacement

MC 202

Chair: Dwight Davy, Kiyonori Mizuno

9:30	Christopher J Barr	Knee Kinematics Of Total Knee Replacement Patients: Pre And Postoperative Analysis Using Computer Generated Images
9:45	Monika Zihlmann	3D Kinematic And Kinetic Data Of Total Knee Arthroplasty During The Stance Phase Of Level Walking Using A Moving Video-Fluoroscope
10:00	Elise Laende	Migration Of Medial-Pivot And Posterior Stabilized Implants
10:15	Brendan Joss	Gait Affects Tibial Component Migration In Unicondylar Knee Arthroplasty

Sport 4

UC 1

Chair: Brian Davis, Stefan Duma

9:30	Karine J. Sarro	Rib Cage Motion Patterns In Swimmers During Respiratory Maneuvers
9:45	Hiroyuki Nunome	Segmental Dynamics Of Soccer Instep Kicking
10:00	Ricardo M. L. Barros	Representation And Analysis Of Soccer Players' Trajectories
10:15	Sumiyo Toki	Quantitative Match Analysis Of Soccer Games With Two Dimensional DLT Procedures

Friday, August 5

11:00 AM

Musculoskeletal Modeling

Waetjen Auditorium

Chair: Richard Neptune, Douglas Pedersen

11:00	Kotaro Sasaki	Muscle Contributions To The Flight Phase In Running
11:15	Robert F. Kirsch	Musculoskeletal Modeling Of An EMG-Based Neuroprosthesis For Arm Function
11:30	Samuel R. Ward	Scaling Of Human Lower Extremity Muscle Architecture To Skeletal Dimensions
11:45	Clayton Adam	Gravity-Induced Torsion And Vertebral Rotation In Idiopathic Scoliosis
12:00	Serge Van Sint Jan	3D Muscle Moment Arms Using Musculoskeletal Modeling
12:15	Veronica J. Santos	Implementing Data-Driven Models Of The Human Thumb Into A Robotic Grasp Simulator To Predict Grasp Stability

Methods in Gait Analysis

UC 6

Chair: Gordon Robertson, Kit Vaughan

11:00	At Hof	Handling Of Impact Forces In Inverse Dynamics In Landing After A Jump
11:15	Lei Ren	A Three-Dimensional Whole-Body Walking Model Based Only On Gait Kinematics
11:30	Raziel Riemer	An Analysis Of Uncertainties In Inverse Dynamics Solutions For Gait
11:45	George Chen	Induced Acceleration Contributions To Locomotion Dynamics Are Not Physically Well-Defined
12:00	Zachary Domire	Comparison Of Methods Used To Determine Induced Vertical Ground Reaction Force
12:15	Ben Stansfield	Optimisation Or Antagonism? Muscle Force Solutions In The Lower Limb

Hand and Wrist 2

MC 201

Chair: Kai-Nan An, Zong-Ming Li

11:00	Zong-Ming Li	Gender Difference In Carpal Tunnel Compliance
11:15	Haoyu Wang	Evaluation Of Five Ligamentous Stabilizers Of The Scaphoid And Lunate
11:30	Fong-Chin Su	Joint Load Of The Thumb In Jar Opening
11:45	Asimakis Kanellopoulos	An Investigation Of Wrist Joint Function Under Load
12:00	Haoyu Wang	Variations In Scapholunate Gap With Various Types Of Ligamentous Sectioning
12:15	Joseph D. Towles	Use Of The Long Flexor And Intrinsic Thumb Muscles To Restore Lateral Pinch In The Tetraplegic Thumb: A Cadaver Study

Knee Mechanics 2

MC 202

Chair: Scott McLean, Jack Engsborg

11:00	Sietske Aalbersberg	Co-Contraction In ACL Deficient Subjects
11:15	Janie Astephen	Postural Gait Changes Are Seen With Severe, Not Moderate, Knee Osteoarthritis
11:30	Hyung-Soon Park	Passive Knee Joint Properties In Tibial Rotation In Men And Women
11:45	Aaron Derouin	Knee Stability: Mechanical Contributions Of Individual Muscles
12:00	Frances T. Sheehan	In Vivo Patellar Tendon Moment Arm And Tibial-Femoral Helical Axis
12:15	Anneliese D. Heiner	A Device To Measure In Vivo Translational And Rotational Laxity Of Rabbit Knees

Running Injuries

UC 1

Chair: Irene McClay Davis, Elizabeth Hardin

11:00	Mark Creaby	Comparison Of Static And Dynamic Biomechanical Measures In Military Recruits With And Without A History Of Third Metatarsal Stress Fracture
11:15	Siriporn Sasimontongkul	Estimation Of Stresses And Cycles To Failure Of The Tibia During Rested And Fatigued Running
11:30	Tracy Dierks	Kinematics Of Runners With And Without Patellofemoral Pain During Prolonged Treadmill Running
11:45	Clare Milner	Does Free Moment Predict The Incidence Of Tibial Stress Fracture?
12:00	Wolfgang Potthast	Influence Of Muscle Pre-Activation And Knee Joint Angle On Axial Tibio-Femoral Shock Transmission
12:15	Robert J. Butler	Does Footwear Affect Lower Extremity Variability In High And Low Arched Runners?

Friday, August 5

1:15 PM

Keynote Lecture

Waetjen Auditorium

Chair: Mark Grabiner

1:15	J.J. Collins	Noise-Enhanced Sensorimotor Function
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Friday, August 5

2:15 PM

Motor Control

Waetjen Auditorium

Chair: Jim Collins, Guang Yue

2:15	Scott K. Lynn	Is Lower Limb Joint Proprioception Systemic?
2:30	Daniel M. Krainak	FMRI Brain Imaging During Six DOF Mechanical Measurements Of Upper Limb Isometric Contractions
2:45	Joseph S. Soltys	Velocity Sense In The Lumbar Spine Is Modulated By The Vestibular And Proprioceptive Systems
3:00	J. Maxwell Donelan	Sensory Regulation Of Muscle Activity During Walking In Conscious Cats
3:15	Dirk Jan Veeger	Proprioceptive Disturbances In RSI: A Comparison With CRPS

Locomotion Energetics

UC 6

Chair: Art Kuo, Steve McCaw

2:15	Rodger Kram	Metabolic Costs Of Forward Propulsion And Leg Swing At Different Running Speeds
2:30	Brian Umberger	Mechanical Efficiency During Walking At Different Stride Rates
2:45	Jiro Doke	Metabolic Cost Of Generating Force During Human Leg Swinging
3:00	Peter Gabriel Adamczyk	Metabolic Cost Of Walking Varies With Foot Roll-Over Radius
3:15	Manoj Srinivasan	Energetics Of Legged Locomotion: Why Is Total Metabolic Cost Proportional To The Cost Of Stance Work?

Falling and Fall Prevention

MC 201

Chair: Jill McNitt-Gray, Mark Grabiner

2:15	Michael Madigan	Age-Related Joint Torque Analysis During Support Phase Of Single Step Recovery
2:30	Karen L. Reed-Troy	Recovery Responses To Surrogate Slips Are Different Than Actual Slips
2:45	Vivi M. Thorup	Ground Reaction Forces In Pigs During Gait On Dry And Greasy Floor
3:00	Lisa Case	Arrest Of Forward Falls Onto Outstretched Hands In Healthy Young Women
3:15	Charles Cejka	Control Of Reach-To-Grasp Reactions During Perturbed Locomotion In Familiar And Unfamiliar Environments: When Does Visual Fixation Of The Handrail Occur?

Knee Mechanics 3

MC 202

Chair: Stephen Piazza, Thor Besier

2:15	Yu Jen Chen	Validation Of A Three Dimensional Model To Quantify Patellofemoral Joint Forces
2:30	William Anderst	Assessment Of Functional Joint Space Repeatability During In Vivo Dynamic Loading
2:45	Josh MacNeil	Preservation Of Periarticular Cancellous Morphology And Mechanical Strength In Post-Traumatic Experimental Osteoarthritis By Antiresorptive Therapy
3:00	Kim McLaughlin	In Vivo Assessment Of Congruence In The Patellofemoral Joint Of Healthy Subjects
3:15	Elvis Chen	Ligament Estimation From In Vivo Knee Motion: An Inverse-Kinematics Model

Animal Biomechanics

UC 1

Chair: Boris Prilutsky, Gail Perusek

2:15	Melanie Scholz	Scaling And Jumping: Gravity Loses Grip On Small Jumpers
2:30	Anne Su	Variability In The Direction Of Substrate Reaction Forces In The Locomotor Repertoire Of The Primate Lemur Catta
2:45	Monica A. Daley	Dynamic Stability In A Rough Environment: The Influence Of Initial Limb Posture On Body Dynamics During An Unexpected Perturbation
3:00	David Lee	Proximo-Distal Distribution Of Mechanical Work And Capacity For Elastic Energy Storage In The Limb Joints Of Running Goats
3:15	Peter Zani	The Energetics And Biomechanics Of Turtle Locomotion

Friday, August 4

4:00 PM

ISB President's Lecture

Waetjen Auditorium

Chair: Brian Davis

4:00	Mary Rodgers	Rehabilitation & Biomechanics (Do The Locomotion)
5:00	CLOSING CEREMONY	

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ISB/ASB 2005 Congress Overview

Room A Waetjen Auditorium	Room B UC 6	Room C MC 201	Room D MC 202	Room D UC 1
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Sunday July 31, 2005

3:00 PM	Opening Ceremony
4:00 PM	Wartenweiler Memorial Lecture: Bruce Latimer - Biomechanics and Evolution
5:00 PM	Welcome reception and barbecue - University Center

Monday August 1, 2005

8:30 AM	Keynote Lecture: Don Chaffin				
9:30 AM	Ergonomics 1	Locomotion 1	Soft Tissue 1	Space Biomechanics	Bone 1
10:30 AM	Break - University Center				
11:00 AM	Ergonomics 2	Locomotion 2	Soft Tissue 2	Foot 1	Bone 2
12:30 PM	Lunch - University Center				
1:15 PM	Keynote Lecture: Andre Seyfarth				
2:15 PM	Legged Robots	Gait Analysis	Shoulder	Foot 2	Simulation
3:30 PM	Break - University Center				
4:00 PM	Pelvic Organ and Muscle Biomechanics	ISB Technical Group: 3D Analysis	ISB Technical Group: Shoulder	ISB Technical Group: Footwear	ISB Technical Group: Simulation
5:30 PM	NOVEL workshop on pressure distribution measurement - MC 201 (registration required)				

Tuesday August 2, 2005

8:30 AM	Keynote Lecture: Julie Steele				
9:30 AM	Knee Injuries 1	EMG	Muscle Mechanics	Sport 1	Bone - Modeling
10:30 AM	Break - University Center				
11:00 AM	Knee Injuries 2	Gait and OA	Muscle In Vivo	Sport 2	Hip Replacement
12:30 PM	Lunch - University Center				
1:15 PM	Keynote Lecture: Masahiro Kurosaka				
2:15 PM	Knee Mechanics 1	Methods 1	Spine 1	Ankle	Head Injury
3:30 PM	Break and Poster Sessions - UC 201				
7:00 PM	Reception at Cleveland Museum of Natural History				

Wednesday August 3, 2005

8:30 AM	ISB Promising Young Scientist Award: Constantinos Maganaris				
9:00 AM	ISB Clinical Biomechanics Award: Magnus Kjartan Gislason				
9:30 AM	ISB Young Investigator Awards	Posture and Balance 1	Spine 2	Lower Extremity Injury	Prosthetics and Orthotics
10:30 AM	Break - University Center				
11:00 AM	ISB Muybridge Award Lecture: Rik Huiskes				
12:00 PM	ISB General Assembly (until 12:45)				
12:00 PM	Lunch - University Center				
afternoon	Lab tours and excursions				
2-7 PM	Tekscan workshop on pressure distribution measurement - UC 364 (registration required)				

Thursday August 4, 2005

8:30 AM	ASB Jim Hay Memorial Award Lecture: Mont Hubbard				
9:30 AM	ASB Young Scientist Awards	Gait Simulation	Functional Electrical Stimulation	Sport 3	Injury Biomechanics
10:30 AM	Break - University Center				
11:00 AM	Hand and Wrist 1	Diabetic Foot	Gait and Aging	Running	Wheelchair
12:30 PM	Lunch - University Center				
1:15 PM	ASB Borelli Award Lecture: Kai-Nan An				
2:15 PM	ASB Awards	Posture and Balance 2	Rehabilitation Robotics	Cartilage	Instrumentation
3:30 PM	Break and Poster Sessions - University Center				
7:00 PM	Baseball: Cleveland Indians vs. New York Yankees at Jacobs Field				

Friday August 5, 2005

8:30 AM	Keynote Lecture: Martyn Shorten				
9:30 AM	Rehabilitation	Motor Control - Upper Extremity	Muscle Adaptation	Knee Replacement	Sport 4
10:30 AM	Break - University Center				
11:00 AM	Musculoskeletal Modeling	Methods in Gait Analysis	Hand and Wrist 2	Knee Mechanics 2	Running Injuries
12:30 PM	Lunch - University Center				
1:15 PM	Keynote Lecture: James J. Collins				
2:15 PM	Motor Control	Locomotion Energetics	Falling and Fall Prevention	Knee Mechanics 3	Animal Biomechanics
3:30 PM	Break - University Center				
4:00 PM	ISB President's Lecture: Mary Rodgers				
5:00 PM	Closing Ceremony (until 6:00)				
7:00 PM	Conference Banquet at Rock & Roll Hall of Fame				