

ASB 2015 Annual Meeting Overall Schedule

	Wednesday, August 5	Thursday, August 6				Friday, August 7				Saturday, August 8						
7:00		Breakfast (Battelle Grand N) WIS Breakfast (Hayes) (food provided)				Breakfast (Battelle Grand N) Diversity Breakfast (Hayes) (food provided)				Olentangy Trail Fun Run					7:00	
7:30		Breakfast (Battelle Grand N) (food provided)				Break				Breakfast (Battelle Grand N) (food provided)					7:15	
8:00		Changing the Landscape of Injury Prevention	Knee Mechanics	Muscle, Tendon, and Ligament Modeling	Prescription of Lower-Limb Orthoses and Exoskeletons	Upper Extremity Rehabilitation	Break				Breakfast (Battelle Grand N) (food provided)					7:30
8:30							Borelli Award Lecture Rodger Kram, PhD (Regency)									7:45
9:00							Break									
9:30		Break & Exhibits									Fellows Symposium: Reflections and Advice	Level Gait	Ergonomics: Design and Training	Dual-Tasking and Functional Recovery Following Concussion	Assessing and Interpreting Dynamic Balance	
10:00		Grand Challenges in Upper Limb Biomechanics	Unique Insights Gained from Simulation Methods	Tendon and Ligament Mechanics	Obesity and Falls	Biofeedback Modalities for Gait Retraining									Break & Exhibits (Battelle Grand N)	
10:30							Poster Session II (Battelle Grand N)									
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Conference Events	Podiums
Symposia	Thematic Posters

Thursday, August 6, 8:00 – 9:30 AM

	Changing the Landscape of Injury Prevention	Knee Mechanics	Muscle, Tendon, and Ligament Modeling	Prescription of Lower-Limb Orthoses and Exoskeletons	Upper Extremity Rehabilitation
Room; Type	Regency Ballroom; Symposium	Delaware CD; Podium	Fairfield; Podium	Delaware A; Thematic Poster	Delaware B; Thematic Poster
Chair	Robin Queen <i>Duke University Medical Center</i>	Robert Siston <i>The Ohio State University</i>	Silvia Blemker <i>University of Virginia</i>	Greg Sawicki <i>North Carolina State University</i>	Andy Karduna <i>University of Oregon</i>
Co-Chair		Stephen Piazza <i>Penn State University</i>	Sabrina Lee <i>Northwestern University</i>	Jason Wilken <i>Center for the Intrepid, Brooke Army Medical Center</i>	Meghan Vidt <i>University of Waterloo</i>
8:00 AM	Using Sensors To Improve Sport Safety Stefan Duma, Steven Rowson <i>Virginia Tech</i> Quantifying Field-Based Warfighter Performance Via A Body-Worn Array Of Wireless Inertial Sensors Scott McLean, Stephen Cain, Ryan McGinnis, Steven Davidson, Rachel Vitali, Noel Perkins <i>The University of Michigan</i> Clinical Interventions For Gait Abnormalities: Mode Of Feedback And Lower Extremity Mechanical Effects D. S. Blaise Williams III <i>Virginia Commonwealth University</i> Assessing Load And Load Symmetry Outside The Lab Robin Queen <i>Duke University Medical Center</i>	Open Knee Comprehensive Patellofemoral Joint Testing For Specimen Specific Next Generation Knee Models Robb Colbrunn, Tara Bonner, Snehal Chokhandre, Craig Bennetts, Jason Halloran, Ahmet Erdemir <i>Cleveland Clinic</i>	Influence Of Tendon Stiffness On Muscle-Tendon Interaction Dynamics During Cyclic Contractions Jonathan Doering, Gregory Sawicki <i>UNC-NC State Joint Department of Biomedical Engineering</i>	Thematic Poster Viewing	Thematic Poster Viewing
8:15 AM		An ACL Denervation Model For Determination Of The Effects Of Sensory Afferents On Joint Function Christopher Nagelli, James Cook, Keiichi Kuroki, Chantelle Bozynski, Timothy Hewett <i>The Ohio State University</i>	3D Finite-Element Modeling Of The Soft Palate Reveals Synergic Actions Of Speech Muscles Joshua Inouye, Jamie Perry, Kant Lin, Silvia Blemker <i>University of Virginia</i>	The Influence Of Solid Ankle-Foot-Orthoses On Forward Propulsion And Dynamic Balance In Healthy Adults During Walking Arian Vistamehr, Steve Kautz, Rick Neptune <i>The University of Texas at Austin</i>	Surveying The Interest Of Individuals With Upper Limb Loss In Novel Prosthetic Control Techniques Susannah Engdahl, Breanne Christie, Brian Kelly, Alicia Davis, Cindy Chestek, Deanna Gates <i>University of Michigan</i>
8:30 AM		Pediatric Obesity And Walking Duration Affect Medial And Lateral Tibiofemoral Compartment Contact Forces Zachary Lerner, Wayne Board, Raymond Browning <i>Colorado State University</i>	Agent-Based Model Of Inflammation And Regeneration Following Contraction-Induced Muscle Injury Kyle Martin, Kelley Virgilio, Shayn Peirce, Silvia Blemker <i>University of Virginia</i>	The Influence Of Passive-Dynamic Ankle-Foot Orthosis Bending Axis On Gait Performance In Individuals With Lower-Limb Impairments Ellyn Ranz, Elizabeth Russell Esposito, Jason Wilken, Richard Neptune <i>The University of Texas at Austin</i>	Quick, Low-Cost, Sensitive Motor Assessment Using Markerless Motion Capture Steven Charles, Paula Johnson, Clay Kincaid <i>Brigham Young University</i>
8:45 AM		Effect Of Knee Bracing And Wedged Insoles Upon Knee Joint Contact Forces Jim Tse, Howard Hillstrom <i>HSS</i>	Effects Of Q-Angle And Tibial Slope On Anterior Cruciate Ligament Force: A Finite Element Study Amirhesam Amerinatanzi, Marcel Ingels <i>Engineering Center for Orthopaedic Research Excellence (E-CORE), University of Toledo</i>	Effects Of Ankle Bending Stiffness Of Ankle-Foot Orthosis On Gait Patterns With Cerebral Palsy: A Pilot Study With Single-Subject Design Juliana Sánchez Posada, Jaebum Son, Juan Carlos Briceño, Jose Luis Duplat, Fernando Ortiz, Luis Eduardo Herrera <i>Universidad de los Andes</i>	Portable Myoelectric Brace Use In Chronic, Post Stroke Hemiparesis Nienke Willigenburg, Michael McNally, Nathan Schilatay, Timothy Hewett, Stephen Page <i>The Ohio State University, Sports Health and Performance Institute</i>
9:00 AM		Can Osteoarthritis Radiographic Severity And Pain Be Explained By Joint Mechanics? Elizabeth Hassan, Kevin Deluzio <i>Queen's University</i>	Effect Of Deep Medial Collateral Ligaments On Meniscus Motion Trent Guess, Swithin Razu, Hamidreza Jahandar <i>University of Missouri</i>	Adaptive Gain For Proportional Myoelectric Control Of A Robotic Ankle Exoskeleton During Human Walking Jeffrey Koller, Daniel Jacobs, Daniel Ferris, David Remy <i>University of Michigan, Ann Arbor</i>	Improving Finger Movement Repertoire In Stroke Rajiv Ranganathan <i>Michigan State University</i>
9:15 AM	Active And Passive Knee Stability In Patients With Severe OA Gregory Freisinger, Erin Hutter, Jackie Lewis, Rachel Baker, Jeffrey Granger, Matthew Beal, Xueliang Pan, Laura Schmitt, Robert Siston, Ajit Chaudhari <i>The Ohio State University</i>	Muscle Architecture Analysis Using Computational Fluid Dynamics Joshua Inouye, Geoffrey Handsfield, Silvia Blemker <i>University of Virginia</i>	Implementing A Virtual Gait Assistance Device Within A Musculoskeletal Simulation Framework Tunc Akbas, James Sulzer <i>The University of Texas at Austin</i>	Scapular Kinematic Is Altered After Electromyography Biofeedback Training Jun San Juan, Samantha Gunderson, Kai Kane-Ronning, David Suprak <i>Western Washington University</i>	

Thursday, August 6, 10:00 – 11:30 AM

	Grand Challenges in Upper Limb Biomechanics	Unique Insights Gained from Simulation Methods	Tendon and Ligament Mechanics	Obesity and Falls	Biofeedback Modalities for Gait Retraining
Room; Type	Regency Ballroom; Symposium	Delaware CD; Podium	Fairfield; Podium	Delaware A; Thematic Poster	Delaware B; Thematic Poster
Chair	Steven Charles <i>Brigham Young University</i>	Ross Miller <i>University of Maryland</i>	Darryl Thelen <i>University of Wisconsin - Madison</i>	Rakie Cham <i>University of Pittsburgh</i>	Ajit Chaudhari <i>The Ohio State University</i>
Co-Chair		Karl Zelik <i>Vanderbilt University</i>	Muturi Muriuki <i>Edward Hines Jr. VA Hospital</i>	April Chambers <i>University of Pittsburgh</i>	Hannah Rice <i>Harvard Medical School</i>
10:00 AM	<p>Toward Greater Collaboration Between Clinicians And Researchers Of Upper-Limb Movement Disorders Steven Charles <i>Brigham Young University</i></p> <p>Can We Infer Neural Control Strategies From A System With Biomechanical Constraints? Eric Perreault <i>Northwestern University</i></p> <p>Bridging The Gap Between Shoulder Biomechanics And The Clinic Meghan Vidt <i>University of Waterloo</i></p> <p>Hand Biomechanics And Orthopedic Translation Zong-Ming Li <i>Cleveland Clinic</i></p> <p>Do Biomechanical Studies Of The Upper Limb Advance General Scientific Knowledge? Should They? Wendy Murray <i>Northwestern University</i></p> <p>Challenging The Current Cortico-Centric View Of The Neural Control Of The Upper Extremity And Hand Francisco Valero-Cuevas <i>University of Southern California</i></p>	<p>Methods For Full Body Inverse Dynamics Analysis Of Standing Jump Blake Ashby, Nathaniel Vlietstra, Lauren Hickox, Gordon Alderink <i>Grand Valley State University</i></p>	<p>Biomechanical, Clinical, And Functional Changes With Achilles Tendon Pathology Jennifer Zellers, Daniel Cortes, Karin Silbernagel <i>University of Delaware</i></p>	<p>Thematic Poster Viewing</p>	<p>Thematic Poster Viewing</p>
10:15 AM		<p>Synthesis Of Subject-Specific Task-Level Motions For Predictive Simulations Of Balance Recovery Misagh Mansouri, Cyril Donnelly, Mark Robinson, Jos Vanrenterghem, Jeffrey Reinbolt <i>University of Tennessee</i></p>	<p>Variation In The Human Achilles Tendon Moment Arm During Walking Kristen Rasske, Darryl Thelen, Jason Franz <i>University of Wisconsin- Madison</i></p>	<p>Individual Differences In Required Coefficient Of Friction Affect Slip Risk During Level Walking Kurt Beschorner, Devon Albert, Mark Redfern <i>University of Pittsburgh</i></p>	<p>Automation Of Stride-Specific Belt Velocities On Instrumented Treadmills For Gait Rehabilitation And Training Jacob Hinkel-Lipsker, Michael Hahn <i>University of Oregon</i></p>
10:30 AM		<p>Simulation-Based Design Of Devices To Augment Human Movement John Rogers <i>United States Military Academy</i></p>	<p>Lumbar Intervertebral Disc Deformation In Vivo During Lifting Motion Ryan Byrne, William Anderst, Xudong Zhang <i>University of Pittsburgh</i></p>	<p>Falls Resulting From A Laboratory-Induced Slip Occur At A Higher Rate Among Young And Older Adults Who Are Obese Leigh Allin, Xuefang Wu, Maury Nussbaum, Michael Madigan <i>University of Virginia</i></p>	<p>Gait Retraining To Improve Stance Time Asymmetry Reduces Knee External Adduction Moments: A Case Study Of A Unilateral Transtibial Amputee Hannah Rice, Steve Jamison, Alison Pruziner, Irene Davis <i>Spaulding National Running Center, Harvard Medical School</i></p>
10:45 AM		<p>Simulated Soft-Tissue Oscillation Increases Stability In Passive-Dynamic Walkers Samuel Masters, John Challis <i>The Pennsylvania State University</i></p>	<p>Quantifying Microstructural Damage Accumulation In The Annulus Fibrosus During Induced Intervertebral Disc Herniation Mamiko Noguchi, Alexander Wong, Ibrahim Ben Daya, Troy Campbell, Joe Quadrilatero, Jack Callaghan <i>University of Waterloo</i></p>	<p>Obesity Increases Fall Rate Following A Laboratory-Induced Trip Christina Garman, Maury Nussbaum, Michael Madigan <i>Virginia Tech</i></p>	<p>Development Of A Visual Biofeedback System For Center Of Pressure Modification During Gait Michael Browne, Gregory Sawicki <i>Joint Department of Biomedical Engineering at UNC Chapel Hill and NC State University</i></p>
11:00 AM		<p>Generating Predictive Simulations Of Musculoskeletal Movement Using Optimal Control, Matlab And OpenSim Leng-feng Lee, Brian Umberger <i>Stony Brook University</i></p>	<p>Relative Strain In Anterior Cruciate Ligament And Medial Collateral Ligament During Simulated Athletic Tasks: Implications For Injury Risk Nathaniel Bates, Rebecca Nesbitt, Jason Shearn, Gregory Myer, Timothy Hewett <i>The Ohio State University</i></p>	<p>Vibration Training Could Reduce Risk Of Falls Among Young Adults With Obesity Jose Munoz, JaeEun Kim, Maria Sanchez, Feng Yang <i>University of Texas at El Paso</i></p>	<p>Modifying Ankle Joint Neuromechanics Using An Ankle Foot Orthosis With Vibrotactile Feedback During Human Walking Audrey Westbrook, Gregory Sawicki <i>North Carolina State University</i></p>
11:15 AM	<p>Influence Of Stiffness Of An Ankle-Foot Orthosis On Gait - A Predictive Simulation Study Anne Koelewijn, Antonie van den Bogert <i>Cleveland State University</i></p>	<p>The Effect Of Isolated And Combined Tibial Rotations On ACL And MCL Biomechanics During Simulated Deceleration Tasks Nathaniel Bates, Rebecca Nesbitt, Jason Shearn, Gregory Myer, Timothy Hewett <i>The Ohio State University</i></p>	<p>An Evaluation Of Fall Biomechanics That May Underlie The Incidence Of Wrist And Hip Fractures In Older Adult Women Jeremy Crenshaw, Kathie Bernhardt, Shreyasee Amin, Kenton Kaufman <i>University of Delaware, Mayo Clinic</i></p>	<p>Individuals With Incomplete Spinal Cord Injury Change Locomotor Stability After Exposure To A Viscous Force Field Keith Gordon, Geoffrey Brown, Kristen Jakubowski, Mary Wu <i>Northwestern University</i></p>	

Friday, August 7, 3:00 – 4:30 PM

	Let's Get Younger: 6th-12th Grade Educational Outreach in Biomechanics	Upper Extremity Mechanics	Amputee Gait: Concise Talks and Extended Discussion	Functional Muscle Mechanics
Room; Type	Delaware CD; Symposium	Fairfield; Podium	Delaware A; Thematic Poster	Delaware B; Thematic Poster
Chair	Paul DeVita <i>East Carolina University</i>	Wendy Murray <i>Northwestern University</i>	Steve Collins <i>Carnegie Mellon University</i>	Walter Herzog <i>University of Calgary</i>
Co-Chair		Jennifer Nichols <i>University of Utah</i>	Karl Zelik <i>Vanderbilt University</i>	Scott Sibole <i>University of Calgary</i>
3:00 PM		Subchondral Strains And Initiation Of Osteoarthritis In The Radiocarpal Joint Joshua Johnson, Karen Troy <i>Worcester Polytechnic Institute</i>	Thematic Poster Viewing	Thematic Poster Viewing
3:15 PM	Bringing Mechanics To Life Antonia Zaferiou, Edward Wagner, Travis Peterson, Jani Macari Pallis, Jill McNitt-Gray <i>University of Southern California</i>	A Simulation Study Of The Wrist And Thumb: Why Do Wrist Surgeries Decrease Lateral Pinch Strength? Jennifer Nichols, Michael Bednar, Sarah Wohlman, Wendy Murray <i>University of Utah</i>	1/F Characteristics Of Step Width During Treadmill Walking Mark D. Grabiner, Marilyn P. Wyatt, Pinata H. Sessoms, Kenton R. Kaufman <i>University of Illinois at Chicago</i>	Sarcomere Length Organization As A Design For Cooperative Function Amongst All Lumbar Spine Muscles Derek Zwambag, Alexander Ricketts, Stephen Brown <i>University of Guelph</i>
3:30 PM	Experiential, Low Cost Neuroscience Outreach For All Ages - Muscles Alive! Brian Tracy <i>Colorado State University</i>	Effects Of Carpal Tunnel Syndrome On Force Coordination And Muscle Coherence During Precision Pinch Szu-Ching Lu, Kaihua Xiu, Tamara Marquardt, Peter Evans, William Seitz Jr., Zong-Ming Li <i>Cleveland Clinic</i>	Gait Speed Is Influenced By Secondary Tasks In Persons With Unilateral Transtibial Amputation Brad Hendershot, Jennifer Cooper, Erik Wolf, Alison Pruziner <i>Walter Reed National Military Medical Center</i>	Functional Importance Of Fascia In The Preservation Of Muscle Tension Roy Ruttiman, David Sleboda, Thomas Roberts <i>Brown University</i>
3:45 PM	The Rebel "STEM" Academy: Bringing Students To The Science Janet Dufek, Christopher Heavey <i>University of Nevada, Las Vegas</i>	A Mathematical Model For Measuring Scapular Motion Kristen Nicholson, Tyler Richardson, Elizabeth Rapp, Garry Quinton, Kert Anzilotti, James Richards <i>University of Delaware</i>	Lower Prosthetic Stiffness Minimizes The Metabolic Cost Of Running For Individuals With Bilateral Leg Amputations Owen Beck, Paolo Taboga, Alena Grabowski <i>University of Colorado Boulder</i>	Multiscale Muscle Models Predict How Accumulated Microtears Lead To Acute Muscle Injury Kelley Virgilio, Kyle Martin, Shayn Peirce, Silvia Blemker <i>University of Virginia</i>
4:00 PM	Bridging Engineering, Science And Technology In Medicine (Best Medicine) Brian Davis, Carin Helfer <i>The University of Akron</i>	Quantifying Kinematic And Muscular Adaptations To Rotator Cuff Fatigue Alison McDonald, Daanish Mulla, Peter Keir <i>McMaster University</i>	The Effects Of Prosthetic Foot Stiffness On Amputee Turning Mechanics Courtney Shell, Glenn Klute, Richard Neptune <i>The University of Texas at Austin</i>	Effects Of Strength Training On Muscle Force Production And Muscle Function In Children With Cerebral Palsy Amy Hegarty, Max Kurz, Wayne Stuber, Anne Silverman <i>Colorado School of Mines</i>
4:15 PM		Identification Of Multidimensional Shoulder Impedance With Passive And Active Muscles David Lipps, Emma Baillargeon, Daniel Ludvig, Eric Perreault <i>Northwestern University</i>	When Should We Biomechanically Examine A Lower-Limb Amputee? A Systematic Review Of Accommodation Times Andrea Wanamaker, Ajit Chaudhari <i>The Ohio State University</i>	Extensor Muscle Sequencing During Return To Stand In A Subgroup Of Individuals With Low Back Pain: Response To Exercise Erika Nelson-Wong <i>Regis University</i>

Friday, August 7, 4:45 – 6:15 PM

	Lower Extremity Mechanics	Biomechanics and Control of Amputee Movement	Running - It's All in How You Land!	Metabolic and Mechanical Energy in Locomotion
Room; Type	Delaware CD; Podium	Fairfield; Podium	Delaware A; Thematic Poster	Delaware B; Thematic Poster
Chair	Tim Hewett <i>Mayo Clinic</i>	Mike Hahn <i>University of Oregon</i>	Irene Davis <i>Harvard Medical School</i>	Rodger Kram <i>University of Colorado Boulder</i>
Co-Chair	Nate Bates <i>The Ohio State University</i>	Young-Hui Chang <i>Georgia Tech</i>	Steve Jamison <i>University of Delaware</i>	Chris Arellano <i>Brown University</i>
4:45 PM	Kinematic/Kinetic Differences Between Subjects With/Without Knee Osteoarthritis After Unilateral Anterior Cruciate Ligament Reconstruction, And The Influence On Stress Distribution Ashutosh Khandha, Kurt Manal, Lynn Snyder-Mackler, Thomas Buchanan <i>University Of Delaware</i>	Trial-Trial Temporal Variability In Upper Limb Functional Task Performance Differentiates Amputees From Controls And Decreases With Practice Matthew Major, Rebecca Stine, Sibylle Thies, Mohammad Sobuh, Adam Galpin, Peter Kyberd, Laurence Kenney <i>Northwestern University</i>	Thematic Poster Viewing	Thematic Poster Viewing
5:00 PM	The Impact Of Various Measures Of Quadriceps Strength On Landing Mechanics In Young Athletes After Anterior Cruciate Ligament Reconstruction: Implications For Second ACL Injury Risk Matthew Ithurnburn, Mark Paterno, Kevin Ford, Timothy Hewett, Laura Schmitt <i>The Ohio State University</i>	Joint Power Adaptations To Running Speed In Individuals With Amputation Using Running-Specific Prostheses Brian Baum, Hiroaki Hobara, Jae Kun Shim <i>Regis University</i>	Loading Patterns Vary By Direction, Footwear, And Foot-Strike In Running Andrew Nordin, Janet Dufek <i>University of Nevada, Las Vegas</i>	Effort-O-Meter: The Relationship Between Effort Of Walking And Amount Of Walking Performed Mailing Wu, Peter Adamczyk, Steve Collins <i>Carnegie Mellon University</i>
5:15 PM	Kinematic Strategies For Asymmetric Bilateral Landing After Anterior Cruciate Ligament Injury Samuel Wordeman, Stephanie Di Stasi, Timothy Hewett <i>The Ohio State University</i>	Body-In-The-Loop Optimization For The Selection Of Prosthetic Control Parameters – A Pilot Study Wyatt Felt, Emily Gardinier, Jeffery Wensman, Deanna Gates, C. David Remy <i>University of Michigan</i>	The Immediate Effects Of Footstrike Loudness Feedback In Reducing Impact Loading In Runners Jeremiah Tate, Clare Milner <i>The University of Tennessee at Chattanooga</i>	Biomechanical Determinants Of Muscle Metabolic Energy Consumption In Locomotion Russell Johnson, Brian Umberger <i>University of Massachusetts Amherst</i>
5:30 PM	Sagittal Plane Knee Excursion Is Key Predictor Of Lower Extremity Performance During Single Leg Hop Joshua Hoffman, Samuel Wordeman, Timothy Hewett <i>The Ohio State University</i>	Emulating Candidate Ankle-Foot Prostheses To Inform Prescription Joshua Caputo, Peter Adamczyk, Steven Collins <i>Carnegie Mellon University</i>	The Effect Of Highly Cushioned Shoes On Tibial Acceleration In Runners Matthew Ruder, Phattarapon Atimetin, Steve Jamison, Irene Davis <i>Spaulding National Running Center, Harvard Medical School</i>	Is The Foot Working With Or Against The Ankle During Human Walking? Karl Zelik <i>Vanderbilt University</i>
5:45 PM	Single-Limb Drop Landing Biomechanics Following Anterior Cruciate Ligament Reconstruction Federico Pozzi, Andrew Rombach, Joseph Zeni, Stephanie Di Stasi, Joaquin Barrios <i>University of Delaware</i>	The Effect Of Multi-Axial Prosthetic Stiffness On Angular Momentum In People With Transtibial Amputation Walking Over Uneven Terrain Lee Childers, Ryan Funderburk, Adam Smith, Jake Davidson <i>Alabama State University</i>	Subject-Specific Tibial Stresses During Shod And Barefoot Running Elizabeth Boyer, Timothy Derrick <i>Iowa State University</i>	A Kinematic And Energetics Model Of Shank Progression During Stance Travis Pollen, Elisa Arch, Steven Stanhope <i>University of Delaware</i>
6:00 PM	Single-Leg Hop Distance As A Functional Surrogate For Lower Extremity Joint Power In Healthy Adults Rachel Tatarski, Joshua Hoffman, Timothy Hewett <i>The Ohio State University</i>	Whole-Body Angular Momentum During Sloped Walking With Powered And Passive Ankle-Foot Prostheses Nathaniel Pickle, Jason Wilken, Jennifer Whitehead, Anne Silverman <i>Colorado School of Mines</i>	Frequency Content Of The Vertical Impact Peak During Rearfoot And Forefoot Running Allison Gruber, W. Brent Edwards, Joseph Hamill <i>Indiana University Bloomington</i>	Asymmetric Forces Increase The Metabolic Cost Of Running For Individuals With A Unilateral Leg Amputation Owen Beck, Paolo Taboga, Alena Grabowski <i>University of Colorado Boulder</i>

Saturday, August 8, 9:00 – 10:30 AM

	Fellows Symposium: Reflections and Advice	Level Gait	Ergonomics: Design and Training	Dual-Tasking and Functional Recovery Following Concussion	Assessing and Interpreting Dynamic Balance
Room; Type	Regency Ballroom; Symposium	Delaware CD; Podium	Fairfield; Podium	Delaware A; Thematic Poster	Delaware B; Thematic Poster
Chair	Richard Hughes <i>University of Michigan</i>	Brian UMBERGER <i>University of Massachusetts Amherst</i>	Jack Callaghan <i>University of Waterloo</i>	Li-Shan Chou <i>University of Oregon</i>	Jonathan Dingwell <i>The University of Texas at Austin</i>
Co-Chair		Kota Takahashi <i>North Carolina State University</i>	Meghan Vidt <i>University of Waterloo</i>	Christopher Neville <i>SUNY Upstate Medical University</i>	Arian Vistamehr <i>Brooks Rehabilitation Hospital</i>
9:00 AM	<p>Follow This Fellow? Fine, But Give It Your Own Twist Paul DeVita <i>East Carolina University</i></p> <p>A Career Path: From Get Smart... To Getting Smarter Irene Davis <i>Harvard Medical School</i></p> <p>Using Biomechanics To Try To Understand The Mechanisms Of Unintentional Injuries So They Can Better Be Prevented James Ashton-Miller <i>University of Michigan</i></p> <p>Regrets, I've Had A Few - But Then Again, Too Few To Mention - Frank Sinatra Rodger Kram <i>University of Colorado Boulder</i></p>	<p>How Obesity Affects Hip Joint Contact Forces During Walking In Children Raymond Browning, Zachary Lerner <i>Colorado State University</i></p>	<p>Systems Engineering Approach To Identifying Core Control Strategies In Individuals With And Without Low Back Pain During A Novel Unstable Sitting Task Bradley Davidson, Sheri Silfies <i>University of Denver</i></p>	Thematic Poster Viewing	Thematic Poster Viewing
9:15 AM		<p>Frontal Hip Power Absorption During Weight Acceptance Among Individuals With Incomplete Spinal Cord Injury Lise Worthen-Chaudhari, James Schmiedeler, Michele Basso <i>The Ohio State University</i></p>	<p>Influence Of Input Device, Work Surface Angle, And Task On Spine Kinematics During Simulated Office Work Maureen Riddell, Kaitlin Gallagher, Colin McKinnon, Jack Callaghan <i>University of Waterloo</i></p>	<p>Effects Of Intentional Effort Manipulation On Balance Tested Under A Dual-Task Paradigm Christopher Neville <i>Upstate Medical University</i></p>	<p>A Comparison Of Measures To Assess Balance In Post-Stroke Subjects Arian Vistamehr, Leah Carter, Steve Kautz, Mark Bowden, Rick Neptune <i>The University of Texas at Austin</i></p>
9:30 AM		<p>Knee Moments Increase More Than Ground Reaction Forces Increase With Added Loads Rebecca Fellin, Shane Sauer, Peter Frykman, Joseph Seay <i>U.S. Army Research Institute of Environmental Medicine</i></p>	<p>Physical Ergonomics Of Tablet Interaction While Sitting Myroslav Bachynskiy <i>Max Planck Institute for Informatics and Saarland University</i></p>	<p>Single And Dual-Task Turning In Recently Concussed Athletes And Matched Controls: Preliminary Results Peter Fino, Per Gunnar Brolinson, Thurmon Lockhart, Maury Nussbaum <i>Virginia Tech</i></p>	<p>Body Weight Support Effects Lateral Stability During Treadmill Walking Andrew Dragunas, Keith Gordon <i>Northwestern University</i></p>
9:45 AM		<p>Prospective Gait Analysis Of Ankle Arthrodesis And Arthroplasty Shannon Pomeroy, Michael Hahn, Ava Segal, Eric Whittaker, Marisa Benich, William Ledoux, Bruce Sangeorzan <i>University of Oregon</i></p>	<p>Sitting And Standing Alter Upper Extremity Joint Loading And Localised Discomfort During Manual Materials Handling Tasks Alan Cudlip, Jack Callaghan, Clark Dickerson <i>University of Waterloo</i></p>	<p>Effect Of Sex On Recovery Of Gait Balance Control Following Concussion Quinn Peterson, Rachel Klas, David Howell, Li-Shan Chou <i>University of Oregon</i></p>	<p>Dynamic Gait Stability: The Reciprocal Relationship Between Lower Limb And Trunk Control In Response To Segmental Loading Shawn Beaudette, Timothy Worden, Lori Vallis, Stephen Brown <i>University of Guelph</i></p>
10:00 AM		<p>Analysis Of The Tripod Theory Using Plantar Shear Forces Mariam Crow, Visar Berki, Brian Davis <i>The University of Akron</i></p>	<p>Influence Of Jackhammer Weight On Hand-Arm Vibration Transmission Blake Johnson, Naira Campbell-Kyureghyan, Wilkistar Otieno, Kristian O'Connor <i>University of Wisconsin-Milwaukee</i></p>	<p>Balance Measurements Using A Smartphone At The Upper Arm Compared To The Balance Error Scoring System Peter Fino, Matthew Weirath, Rahul Soangra, Thurmon Lockhart, Per Gunnar Brolinson <i>Virginia Tech</i></p>	<p>Does Dynamic Balance Of Transtibial Amputees Change After A Three Week Adaptation Period On A New Prosthetic Foot? Jenny Kent, Nicholas Stergiou, Shane Wurdeman <i>University of Nebraska at Omaha</i></p>
10:15 AM		<p>Adaptations In Lower Extremity Work Due To Changes In Walking Speed Anahid Ebrahimi, Saryn Goldberg, Steven Stanhope <i>University of Delaware</i></p>	<p>A Novel Multiple Comparison Procedure For Functional Data: The Effect Of Fitness- And Movement-Centric Exercise On Trunk Posture Among Firefighters Mamiko Noguchi, Kimihiro Noguchi, Tyson Beach, David Frost, Jack Callaghan <i>University of Waterloo</i></p>	<p>The Relationship Between Head Acceleration And Heart Rate Variability: A Possible Diagnostic Tool For Head Injury Severity Janet Dufek, Nancy Ryan-Wenger, Aaron Prado, Austin Coupe <i>University of Nevada, Las Vegas</i></p>	<p>Relationship Between Postural Balance Parameters And Gait Asymmetries In Unilateral Transtibial Amputees Jonathan Akins, Rory Cooper, David Brienza <i>University of Pittsburgh, VA Pittsburgh Healthcare System</i></p>

Saturday, August 8, 11:00 AM – 12:30 PM

	Biomechanics of Pelvic Organs and Tissues	Non-Level Gait	Balance and Sensory Augmentation	Wide World of Gender Differences in Human Movement	Putting Sensory Back into Sensori-Motor
Room; Type	Regency Ballroom; Symposium	Delaware CD; Podium	Fairfield; Podium	Delaware A; Thematic Poster	Delaware B; Thematic Poster
Chair	Raffaella De Vita <i>Virginia Tech</i>	Anne Silverman <i>Colorado School of Mines</i>	Kurt Beschorner <i>University of Pittsburgh</i>	Paul DeVita <i>East Carolina University</i>	Francisco Valero-Cuevas <i>University of Southern California</i>
Co-Chair	Steven Abramowitch <i>University of Pittsburgh</i>	Bradley Davidson <i>University of Denver</i>	Pilwon Hur <i>Texas A&M University</i>	Rebecca Fellin <i>United States Army Research Institute of Environmental Medicine</i>	Julia Choi <i>University of Massachusetts Amherst</i>
11:00 AM	Pregnancy Induced Adaptations In Intramuscular Extracellular Matrix Of Rat Pelvic Floor Muscles Marianna Alperin, Richard Lieber <i>University of California</i>	Redistribution Of Lower-Limb Joint Power During Uphill And Downhill Walking And Running Richard Nuckols, Dominic Farris, Raziell Riemer, Gregory Sawicki <i>University of North Carolina - Chapel Hill and North Carolina State University</i>	Longitudinal Evaluation Of Postural Stability In Breast Cancer Patients Treated With Taxane-Based Chemotherapy Scott Monfort, Maryam Lustberg, Robyn Patrick, Xueliang Pan, Ajit Chaudhari <i>The Ohio State University</i>	Thematic Poster Viewing	Thematic Poster Viewing
11:15 AM	Biomechanical Modeling Of Anterior Vagina Wall Prolapse Luyun Chen, James Ashton-Miller, John DeLancey <i>The University of Michigan</i>	Muscle Function During Sloped Walking Nathaniel Pickle, Alena Grabowski, Arick Auyang, Anne Silverman <i>Colorado School of Mines</i>	Balance Control During Reactive Stepping: The Effect Of Increased Passive Trunk And Hip Stiffness Tyler Weaver, Andrew Laing <i>University of Waterloo</i>	A Bootstrapping Method To Access The Influence Of Gender On Probability Of Tripping As A Function Of Obstacle Height Christina Garman, Christopher Franck, Maury Nussbaum, Michael Madigan <i>Virginia Tech</i>	The Effect Of Exercise Training On Shoulder Joint Position Sense Yin-Liang Lin, Andrew Karduna <i>University of Oregon</i>
11:30 AM	Resolving The Surface Detection Challenge In Nanoindentation Of Soft Materials For Applications In Reproductive Tissue Mechanics Amy Wagoner Johnson, Jie Wei <i>University of Illinois at Urbana-Champaign</i>	Uphill Walking Enhances The Retention Of A New Stepping Pattern Learned On A Split-Belt Treadmill Jonathan Calvert, Carly Sombric, Gelsy Torres-Oviedo <i>University of Pittsburgh</i>	Improving Neuropathic Gait And Balance Via Sensory Substitution Jay Bauman, Marc LeVangie, Sandro Nigg, Breanne Everett, Benno Nigg <i>University of Calgary</i>	Sex-Specific Differences In Lower Extremity Joint Power During A Single-Leg Hop Test In Healthy Adults Rachel Tatarski, Joshua Hoffman, Timothy Hewett <i>The Ohio State University</i>	How Humans Use Visual Optic Flow To Regulate Stepping Movements Mandy Salinas, Jason Wilken, Jonathan Dingwell <i>The University of Texas at Austin</i>
11:45 AM	Sheep As An Animal Model For Pelvic Organ Prolapse And Urogynecological Research Sourav Patnaik, Bryn Brazile, Vani Dandolu, Margot Damaser, C.H. van der Vaart, Jun Liao <i>Mississippi State University</i>	Muscle Function And Coordination During Stair Ascent Nicole Harper, Jason Wilken, Richard Neptune <i>The University of Texas at Austin</i>	Postural Control Changes Associated With Ankle-Foot Orthoses In Individuals With Peripheral Neuropathy Kimberly Bigelow, Kurt Jackson <i>University of Dayton</i>	Sex Based Differences In Anterior Cruciate And Medial Collateral Ligament Biomechanics In Robotically Simulated Deceleration Tasks Nathaniel Bates, Rebecca Nesbitt, Jason Shearn, Gregory Myer, Timothy Hewett <i>The Ohio State University</i>	Proximal-Distal Differences In Movement Smoothness Reflect Differences In Biomechanics, Not Neural Control Steven Charles, Layne Salmond, Andrew Davidson <i>Brigham Young University</i>
12:00 PM	Biomechanical Evaluation Of The Effectiveness Of Prosthetic Meshes Manfred Maurer, J. Menze, B. Rohrbauer, A. Feola, J. Deprest, E. Mazza <i>Institute of Mechanical Systems, ETH Zurich</i>	Biomechanical Changes During Stair Climbing At The Knee, Hip, And Trunk After Total Knee Arthroplasty Jacqueline Lewis, Gregory Freisinger, Laura Schmitt, Robert Siston, Ajit Chaudhari <i>The Ohio State University</i>	Effect Of Sensory Augmentation Via Skin Stretch Feedback On Quiet Standing Balance Yi-Tsen Pan, Yoo-Seok Kim, Pilwon Hur <i>Texas A&M University</i>	Climbing Direction, Number Of Contact Points And Gender Influence Recovery From Ladder Falls But Not Glove Use Erika Pliener, Na Jin Seo, Kurt Beschorner <i>University of Wisconsin-Milwaukee</i>	Beta Frequency Sensorimotor Cortical Oscillations During Ankle Plantarflexion Are Related To Spatiotemporal Gait Kinematics David Arpin, Elizabeth Heinrichs-Graham, Tony Wilson, Max Kurz <i>University of Nebraska Medical Center</i>
12:15 PM	The Effect Of Fetal Membrane Prestretch On Cervical Loading During Pregnancy Michael Fernandez, Alexander Ehret, Edoardo Mazza, Michael House, Joy Vink, Ronald Wapner, Kristin Myers <i>Columbia University</i>	Simulated Hip Abductor Strengthening Reduces Peak Joint Contact Forces During Stair Descent In Patients With Total Hip Arthroplasty Casey Myers, Peter Laz, Kevin Shelburne, Dana Judd, Cory Christiansen, Jennifer Stevens-Lapsley, Bradley Davidson <i>University of Denver</i>	Recovery From Hip Abductor Fatigue Is Influenced By The Presence Of Low Back Pain Daniel Viggiani, Jack Callaghan <i>University of Waterloo</i>	The Lumbopelvic Ratio During Trunk Flexion: The Effects Of Age, Gender And Motion Pace Milad Vazirian, Iman Shojaei, Anuj Agarwal, Babak Bazrgari <i>University of Kentucky</i>	Outcome Measures For Hand And Leg Function Naturally Reveal Latent Domains Of Strength, Limb Coordination, And Sensorimotor Processing Emily Lawrence, Sudarshan Dayanidhi, Guilherme Cesar, Susan Sigward, Francisco Valero-Cuevas <i>University of Southern California</i>

Saturday, August 8, 2:45 – 4:15 PM

	Can Wearable Active and Passive Leg Prostheses Augment Performance?	Imaging-Based Assessment of Joint Kinematics and Tissue Deformations	Sport Biomechanics	Aging and the Neuromuscular Control of Walking	Biomechanics of Load Carriage
Room; Type	Regency Ballroom; Symposium	Delaware CD; Podium	Fairfield; Podium	Delaware A; Thematic Poster	Delaware B; Thematic Poster
Chair	Alena Grabowski <i>University of Colorado Boulder</i>	Don Anderson <i>The University of Iowa</i>	Jill McNitt-Gray <i>University of Southern California</i>	Jason Franz <i>University of Wisconsin - Madison</i>	Elizabeth Hsiao-Wecksler <i>University of Illinois at Urbana-Champaign</i>
Co-Chair		Arin Ellingson <i>Mayo Clinic</i>	Alison Sheets-Singer <i>Nike, Inc.</i>	Justus Ortega <i>Humboldt State University</i>	Rebecca Fellin <i>United States Army Research Institute of Environmental Medicine</i>
2:45 PM	<p>A Clinical Perspective On Prosthetics</p> <p>Francois Van Der Watt <i>LIM Innovations</i></p> <p>Ankle-Foot Prostheses For Improved Balance And Stability During Standing And Sloped Walking</p> <p>Andrew Hansen, Eric Nickel, Jonathan Sensinger, Stuart Fairhurst, Steve Morin, Sara Koehler-McNicholas, John Ferguson <i>University of Minnesota</i></p> <p>A Rugged Microprocessor Controlled Ankle-Foot Prosthesis For Running</p> <p>Jeffrey Ward, Kyle Schroeder, Dustin Vehon, Robert Holgate, Alexander Boehler, Martin Grimmer <i>SpringActive, Inc.</i></p> <p>Prosthetic Limbs That Reduce The Energy Cost Of Walking To Below Non-Amputee Levels Are Possible But Hard To Discover</p> <p>Steven Collins <i>Carnegie Mellon University</i></p> <p>Optimizing Leg Prostheses For Walking And Running: Can We Augment Performance?</p> <p>Jana Jeffers, Owen Beck, Paolo Taboga, Alena Grabowski <i>University of Colorado Boulder</i></p>	<p>Characterizing Fluoroscopy Based Kinematic Accuracy Based On Pulse Width And Velocity</p> <p>Arin Ellingson, Joseph Mazingo, Dixon Magnuson, Mark Pagnano, Kristin Zhao <i>Mayo Clinic</i></p>	<p>Validation Of An Instrumented Figure Skating Blade To Measure Force</p> <p>Deborah King, Brandon Adamo, Blake Harper, Timothy Snyder, Nicholas Whipple, Stephanie Zybert, Steven Charles, Sarah Ridge <i>Ithaca College</i></p>	<p>Thematic Poster Viewing</p>	<p>Thematic Poster Viewing</p>
3:00 PM		<p>Dynamic Tracking Influenced By Anatomy In Patellar Instability</p> <p>John Elias, Neil Soehnen, Loredana Guseila, Andrew Cosgarea <i>Akron General Medical Center</i></p>	<p>Using Sample Entropy On Continuous And Discontinuous Data To Assess Jumping And Landing</p> <p>Robin Queen, Edward Merenda, Douglas Powell, DS Blaise Williams <i>Duke University Medical Center, Michael W. Krzyzewski Human Performance Lab</i></p>	<p>Stride-To-Stride Control Of Treadmill Walking In Healthy Elderly</p> <p>Jonathan Dingwell, Mandy Salinas, Joseph Cusumano <i>The University of Texas at Austin</i></p>	<p>Quantifying Performance And Effects Of Load Carriage During Completion Of A Window Obstacle Using An Array Of Wireless Inertial Sensors</p> <p>Stephen Cain, Ryan McGinnis, Steven Davidson, Rachel Vitali, Noel Perkins, Scott McLean <i>The University of Michigan</i></p>
3:15 PM		<p>Intra-Operative Fragment Tracking For Articular Fracture Reduction</p> <p>Andrew Kern, Steven Long, Geb Thomas, Donald Anderson <i>The University of Iowa</i></p>	<p>Using An Accelerometer To Monitor Recovery Of Gait Balance Control Following Concussion</p> <p>Li-Shan Chou, David Howell, Louis Osternig <i>University of Oregon</i></p>	<p>Age-Associated Redistribution Of Relative Joint Moment Angular Impulses Is Robust To Stride Length Manipulations</p> <p>Harsh Buddhadev, Ann Smiley-Oyen, Philip Martin <i>Iowa State University</i></p>	<p>Duration Of Exertion And SCBA Design Affect Firefighter Balance</p> <p>Grace Deetjen, Michael Angelini, Richard Kesler, Matthew Petrucci, Karl Rosengren, Gavin Horn, Elizabeth Hsiao-Wecksler <i>University of Illinois at Urbana-Champaign</i></p>
3:30 PM		<p>Comparing The Effective Quadriceps And Patellar Tendon Moment Arms In Asymptomatic Controls And Subjects With Patellofemoral Pain</p> <p>Lucas Thomeer, Frances Sheehan, Jennifer Jackson <i>National Institutes of Health</i></p>	<p>Energy Flow Analysis Of High And Low Velocity Baseball Pitchers</p> <p>Michael McNally, John Borstad, James Onate, Ajit Chaudhari <i>The Ohio State University</i></p>	<p>The Effect Of Fatigue On Knee Mechanics In Older Adults: Does Physical Activity Matter?</p> <p>Jocelyn Hafer, Jane Kent, Katherine Boyer <i>University of Massachusetts Amherst</i></p>	<p>Contributions Of An Integrated Bolster System To Dynamic Load Stability While Wearing A Backpack Over Body Armor</p> <p>Brian Higginson, Jennifer Wheeler <i>Gonzaga University</i></p>
3:45 PM		<p>Method For Three-Dimensional Analysis Of Skeletal Muscle Strain</p> <p>Elisabeth Jensen, Duane Morrow, Joel Felmlee, Kenton Kaufman <i>Mayo Clinic</i></p>	<p>Kinetics Of Youth Baseball Pitchers And Catchers</p> <p>Jessica Washington, Hillary Plummer, Gretchen Oliver <i>Auburn University</i></p>	<p>Increased Lateral Forefoot Pressure Regularity In Older Adults Is Independent Of Gait Velocity</p> <p>Eric Pisciotta, Jennifer Yentes <i>University of Nebraska at Omaha</i></p>	<p>Physiological And Biomechanical Changes During Execution Of Three Load Carriage Paradigms</p> <p>Leif Hasselquist, Meghan O'Donovan, Kari Loverro, Carolyn Benseal <i>Natick Soldier Research, Development and Engineering Center</i></p>
4:00 PM		<p>Stiffening Of The Transverse Carpal Ligament In Pianists Detected By Acoustic Radiation Force Impulse Imaging</p> <p>Christiane Mhanna, Tamara Marquardt, Zong-Ming Li <i>Cleveland Clinic</i></p>	<p>Varus Angle Differences And Band Lengthening During The Moving Valgus Stress Test</p> <p>Thomas Maher, Patrick Schimoler, Ahkila Veerubhotla, Michael Wigton, Alexander Kharlamov, Patrick DeMeo, Mark Miller <i>Allegheny General Hospital</i></p>	<p>Visual Perturbations, But Not A Cognitive Challenge, Induce An Increase In Muscle Co-Activation During Gait In Healthy Old Adults</p> <p>Carrie Francis, Jason Franz, Darryl Thelen <i>University of Wisconsin-Madison</i></p>	<p>Effects Of Load Carriage And Surface Inclination On Slip And Trip Risks</p> <p>Ehsan Rashedi, Hema Bhatt, Maury Nussbaum <i>Virginia Tech</i></p>