

BS(-2) Osmotic Loading Environment Alters Intervertebral Disc Mechanical Function

S. Bezci, J. Felipe, G.D. O'Connell
University of California, Berkeley, CA

BS(-1) Initiation effect of hepatocyte-endothelial cell co-culture on capillary morphogenesis in a microfluidic device

S. Menjo, R. Sudo;
Keio University, Yokohama, JAPAN

BS0 Multiscale Modeling of the Cervical Facet Capsular Ligament During Tensile Joint Loading

J. Zitnay¹, S.P. Lake², K.P. Quinn³, D.J. Lee³, B.A. Winkelstein³, V.H. Barocas¹;
¹University of Minnesota, MN, ²Washington University, St. Louis, MO, ³University of Pennsylvania, Philadelphia, PA

BS1 A Computational Analysis of Contact Stresses in the Glenoid Component of Shoulder Implants

R. Parrish, F. Ansari, L. Pruitt;
University of California, Berkeley, CA.

BS2 Evaluation of mechanical properties of bone in proton pump knock-out mice treated with gastrin receptor antagonist using three-point bending and nanoindentation tests.

M. Ramezanzadehkoldeh¹, K. M. Aasarød², R. Fossmark², U. Syversen², B. Skallerud¹;
¹Department of Structural engineering, Norwegian University of Science and Technology (NTNU), Trondheim, NORWAY, ²Department of Cancer Research and Molecular Medicine, Norwegian University of Science and Technology (NTNU), Trondheim, NORWAY.

BS3 Utilization of Peak Extraction Force of Kirschner (K-) Wire as a Predictor of Bone Mineral Density (BMD)

S. C. Denning, R. C. Pisano, III, A. Dincer, T. R. Bowen, D. M. Ebenstein, E. A. Kennedy;
Bucknell University, Lewisburg, PA.

BS4 Quantification of neural tissue deformation in type 1 Chiari malformation patients pre- and post-spinal decompression surgery and comparison to controls

M. Majcher¹, N. Shaffer¹, F. Loth¹, M. Luciano², J. Oshinski³, B. Martin¹;
¹Conquer Chiari Research Center, University of Akron, Akron, OH, ²Department of Pediatric Neurosurgery, Cleveland Clinic Foundation, Cleveland, OH, ³Department of Radiology, Emory University, Atlanta, GA.

BS5 Computational Comparison of Surgical Techniques in Coronary Artery Revascularization

C. Chu¹, A. B. Ramachandra², A. Kahn³, A. Marsden²;
¹Department of Bioengineering, UCSD, La Jolla, CA, ²Department of Mechanical and Aerospace Engineering,

UCSD, La Jolla, CA, ³Department of Medicine, UCSD, La Jolla, CA.

BS6 Numerical Simulation of Superior Sagittal Sinus Hemodynamics

D. M. Casey¹, B. A. Martin¹, G. A. Bateman², S. H. Pahlavian¹, N. Shaffer¹, K. Smith, Jr.¹, F. Loth¹;
¹University of Akron, OH, ²John Hunter Hospital, Newcastle, AUSTRALIA.

BS7 Feasible Ranges of Muscle Activation Quantify Musculoskeletal Redundancy in Human Walking

C. S. Simpson¹, M. H. Sohn¹, J. L. Allen², L. H. Ting²;
¹Georgia Institute of Technology, Atlanta, GA, ²Georgia Institute of Technology and Emory University, Atlanta, GA.

BS8 Integrating Finite Element Modeling and Musculoskeletal Dynamic Simulation for Evaluating the Effects of Meniscectomy on Tibiofemoral Mechanics In Vivo

R. E. Carey, L. Zheng, C. D. Harner, X. Zhang;
University of Pittsburgh, PA.

BS9 Evaluation of 2D Ultrasound Elastography for the Measurement of Non-uniform Displacements and Strains

A. C. Ehlers, L. Chernak Slane, D. G. Thelen;
University of Wisconsin-Madison, WI.

BS10 Tissue Bond Strength and Intraluminal Temperature as a Function of Applied Fusion Pressure

N. S. Anderson, E. Kramer, J. Cezo, V. L. Ferguson, M. E. Rentschler;
University of Colorado, Boulder, CO.

BS11 Mesenchymal Stem Cells as a Trojan Horse Therapy for Prostate Cancer

J. W. Ngai, J. M. Karp;
Harvard Medical School, Boston, MA.

BS12 Characterization of gait abnormalities in individuals affected by Multiple Sclerosis by means of the Gait Profile Score

G. Piloni¹, G. Coghe¹, M. Galli², M. Pau¹;
¹University of Cagliari, ITALY, ²Polytechnic of Milan, ITALY.

BS17 A Quantitative Analysis of Cerebrospinal Fluid (CSF) Flow in Pediatrics with Type I Chiari Malformation

S. Sarda¹, J. J. Chern¹, N. K. Desai², J. N. Oshinski³;
¹Pediatric Neurosurgery Associates, Children's Healthcare of Atlanta, Atlanta, GA, ²Department of Radiology and Imaging Sciences, Emory University School of Medicine, Atlanta, GA, ³Department of Biomedical Engineering, Emory University School of Medicine and Georgia Institute of Technology, Atlanta, GA.

BS18 Effect of Remote Subthreshold Vibrotactile Noise on Hand Function Post-Stroke

M. Kosmopoulos, P. Hur, L. Enders, N. Seo;
University of Wisconsin-Milwaukee, Milwaukee, WI.

BS19 Prevention of Falls among the Elderly: A Novel Design for a Mobility Enhancing Walking Assistive Device

R. Parrish, G. Kim, N. Goldman, A. Dickey;
University of California, Berkeley, CA

BS13 Pinched Flow Microfluidic Ordering for Droplet Based Single Cell Kinase Activity Assay

C. Chen¹, R. Ramji¹, M. Wang¹, A. Bhagat², D. Weng³, C. Lim¹;
¹National University of Singapore, SINGAPORE, ²Clearbridge Biomedics, SINGAPORE, ³National Cancer Centre Singapore, SINGAPORE.

BS14 A Full Field non-Stereological Method for Quantifying Axon Counts in Optic Nerves

T. M. Cahir, F. Danford, T. Day, J. P. Vande Geest;
University of Arizona, Tucson, AZ.

BS15 Identification of Potential Possibility of Radiolucent Line Occurrence beneath Metal Block Augmentation during High Deep Flexion: Finite Element Analysis

D. Lim¹, J. Lee¹, J. Yum¹, Y. Jang¹, J. Kim², S. Lee³;
¹Sejong University, Seoul, REPUBLIC OF KOREA, ²Konyang University, Nonsan, REPUBLIC OF KOREA, ³Inje University, Seoul, REPUBLIC OF KOREA.

BS16 Gel Electrophoresis as a Simple Method to Measure Differences in the Permeability of Tissues

M. D. Hunckler, J. M. R. Tilley, R. K. Roeder;
University of Notre Dame, Notre Dame, IN.

BS20 Dynamic Moduli of Immature Ovine Vitreous using Advanced Rheology Techniques

J. Colter, A. Williams, P. R. Moran, B. Coats;
University of Utah, SLC, UT.

BS21 Homogeneously Distributed, Low Lap Region Strain in Cadaveric Lumbar AF Shear Lap Test

M. Golman, T. M. Nagel, V. H. Barocas;
University of Minnesota, Minneapolis, MN.

BS22 QuadCrew: Developing New Adaptive Equipment To Allow Quadriplegics To Row On A Crew Team

S. M. Masters, R. D. Bryant, M. A. Wessel, M. C. Imm;
University of Delaware, Newark, DE.

BS23 Characterization of Lubrication in the Temporomandibular Joint

B. Zimmerman, D.L. Burris, X. Lu;
University of Delaware, Newark, DE.

MS433 Potential Benefits of Cooperative Shared Control

K. Babecki, M. L. Tanaka;
Western Carolina University, Cullowhee, NC.

MS434 Development of a novel in-vitro thrombogenicity test methodology to clarify the risk of thrombus detachment from inflow cannula of left ventricular assist devices

A. Takahashi¹, K. Iwasaki¹, Y. Matsuhashi¹, M. Hirata¹, M. Nagai², K. Yamazaki³, M. Umezu¹;
¹Center for Advanced Biomedical Sciences, TWIns, Waseda University, Shinjuku-ku Tokyo, JAPAN, ²Department of Anesthesiology, Tokyo Women's Medical University, Shinjuku-ku Tokyo, JAPAN, ³Department of Cardiovascular Surgery, Tokyo Women's Medical University, Shinjuku-ku Tokyo, JAPAN.

MS435 Multi-scale Computational Fluid Dynamic Modeling of Owl's Silent Flight

C. Rao, H. Liu;
Graduate School of Engineering, Chiba University, Chiba, JAPAN.

MS436 Maternal Bone Regains Mechanical Competence after Lactation by Increasing the Thickness and Altering the Structure Type of the Remaining Trabeculae

C. M. J. de Bakker, A. R. Altman, C. Li, X. S. Liu;
University of Pennsylvania, Philadelphia, PA.

MS437 Increased Endocortical Formation and Periosteal Resorption in Premenopausal Women with Idiopathic Osteoporosis Treated with 18 Months of Intermittent Parathyroid Hormone.

M. Tribble¹, A. Cohen², C. de Bakker¹, K. Nishiyama², E. Shane², X. Liu¹;
¹University of Pennsylvania, Philadelphia, PA, ²Columbia University, New York, NY.

MS438 3-D Probabilistic Modeling of Trabecular Plates and Rods in Human Femoral Neck

A. Morshed¹, D. Mecke¹, J. Wang², E. Guo², X. Wang¹;
¹University of Texas at San Antonio, San Antonio, TX, ²Columbia University, New York City, NY.

MS439 Investigation of relationship between hemodynamics and wall pathology of human unruptured cerebral aneurysms

T. Sugiura¹, Y. Tobe¹, K. Kawamura², T. Yagi¹, Y. Iwabuchi¹, M. Yamanashi¹, K. Takamura¹, M. Umezu¹, Y. Hayashi³, H. Yoshida³, K. Nishitani³, Y. Okada³, S. Kitahara³;
¹Waseda University, Tokyo, JAPAN, ²Akita University Graduate School of Medicine, Akita, JAPAN, ³Kitahara International Hospital, Tokyo, JAPAN.

MS440 Modeling the Time-Dependent Intrapericardial Pressure-Volume Relationship with Effusion

R. Metoyer, Jr.¹, B. Smith²;
¹North Carolina State University, Raleigh, NC, ²Applied Research Associates, Raleigh, NC.

MS441 Effect of unidirectional VEGF supply on the formation of capillary networks with pericytes in a microfluidic device

K. Uwamori;
Keio University, Yokohama, JAPAN.

MS442 Neuromusculoskeletal Modeling of the Knee Joint before and after Anterior Cruciate Ligament Reconstruction - A Five Year Follow-up Study

A. Khandha, E. Gardinier, J. Capin, K. Manal, L. Snyder-Mackler, T. Buchanan;
University of Delaware, Newark, DE.

MS443 Prediction of core body temperature, sweat rate, cardiac output and stroke volume for firefighters using a 3D whole body model

S. A. Zachariah, A. K. Paul, A. Bhattacharya, R. K. Banerjee;
University of Cincinnati, OH.

MS444 A Preliminary Investigation of the Biomechanical Effects of Osteoarthritis Variables in the Human First Metatarsophalangeal Joint Using A Finite Element Approach

X. Chen¹, G. R. DiResta¹, P. S. Walker², S. Rao³;
¹Polytechnic School of Engineering of New York University, Brooklyn, NY, ²Department of Orthopaedic Surgery, New York University Hospital for Joint Diseases, NY, ³Department of Physical Therapy, Steinhardt School of Culture, Education and Human Development, New York University, NY.

MS445 Structural Effects of Cartilage Mechanical Properties in Finite Element Analysis of the Knee Joint

G. Torres-Gutierrez, A. Vidal-Lesso, R. Lesso-Arroyo, R. C. Ramos-Santillano;
Instituto Tecnológico de Celaya, MEXICO.

MS446 Using Biaxial Material Properties in Hyperelastic Anisotropic Model to Evaluate Damage in the Annulus Fibrosus

N. Momeni Shahraki, V. Goel, A. Fatemi;
University of Toledo, OH.

MS447 Prediction equations for leg kinematics and kinetics during slope walking and running

S. Mizrachi¹, R. Riemer¹, G. S. Sawicki²;
¹Ben-Gurion University of the Negev, Beer-Sheva, ISRAEL, ²North Carolina State University, Raleigh, NC.

Monday Poster Session - MS Poster Competition

MS448 Effect of graded facetectomy on motion response of an asymmetric finite element model of lumbar spine

C. R. Hassan, I. Zafarparandeh, I. Lazoglu, A. F. Ozer, D. U. Erbulut;
KOC University, Istanbul, TURKEY.

MS449 Kinematic Analysis of Sit-to-Walk Movement in a Fall-Prone Population

M. Christman, J. Morse, N. Godfrey, C. Wilson, D. Blowski,
A. Doig, A. Merryweather;
University of Utah, Salt Lake City, UT.

MS450 The Effects of Fatigue on Joint Kinematics during Running Using a Waveform Analysis Approach

L. Benson, K. O'Connor;
University of Wisconsin Milwaukee, WI.

MS451 Comparison of unilateral drop landings and land-and-cut maneuvers

E. Pitman, K. Fontenot, Z. A. Sievert, J. T. Weinhandl;
Old Dominion University, Norfolk, VA.

MS452 The influence of gender and limb dominance on lower extremity joint mechanics during land-and-cut maneuvers

K. Fontenot, E. Pitman, Z. A. Sievert, J. T. Weinhandl;
Old Dominion University, Norfolk, VA.

MS453 Bilateral Quadriceps Inhibition in Unilateral Anterior Knee Pain is Not Attributable to Gamma Loop Dysfunction.

T. G. J. Ingram, J. M. Roddick, J. M. Byrne;
Memorial University, St. John's, NL, CANADA.

MS454 Symmetrical Gait Deviations in Patients with Unilateral Piriformis Syndrome

H. Huang¹, C. Wang², S. Hong¹, T. Lu¹;
¹Biomedical Engineering, National Taiwan University, Taipei, TAIWAN, ²Department of Orthopaedic Surgery, School of Medicine, National Taiwan University, Taipei, TAIWAN.

MS455 Characteristics of Ground Reaction Force During a Backward Somersault and Drop Landing

K. Kmiecik;
Ball State University, Muncie, IN.

MS456 MR-based analysis of patellofemoral cartilage contact, thickness, and alignment during deep knee flexion.

B. R. Freedman¹, A. L. Lerner²;
¹University of Pennsylvania, Philadelphia, PA, ²University of Rochester, NY.

MS457 A Comparison of the Starting Angle of Thigh-Calf Contact between Sexes During High Knee Flexion Activities

T. McGillivray, A. Epp-Strobbe, S. Acker;
University of Waterloo, ON, CANADA.

MS458

Novel application of a μ CT perfusion technique to evaluate Achilles tendon vessel microarchitecture in three dimensions

B. R. Freedman, W. Tseng, G. W. Fryhofer, X. S. Liu, L. J. Soslowsky;
University of Pennsylvania, Philadelphia, PA.

MS459 A Microstructural Constitutive Framework for Injured Ligament

C. J. Sundgren, E. Rust, R. J. Brown, T. J. Lujan;
Boise State University, Boise, ID.

MS460 Shear Wave Speed as a Correlate Measure of Tendon Mechanical Properties During Healing

J. A. Martin, A. H. Biedrzycki, D. G. Thelen;
University of Wisconsin - Madison, Madison, WI.

MS461 Micromechanical Stimulation of 3D Tissue-Engineered Microtissues Using a Piezoelectric Actuated Cantilevers

M. J. Walker¹, A. R. West², P. Gratzner¹, J. Brown¹, G. N. Maksym¹;
¹Dalhousie University, Halifax, NS, CANADA, ²University of Manitoba, Winnipeg, MB, CANADA.

MS462 Impact of stent platform on wall shear stress distributions after implantation: insights from computational fluid dynamics simulations using optical coherence tomography and coronary CT angiography

J. K. Hughey¹, H. Otake², K. Hirata², J. F. LaDisa, Jr.¹;
¹Marquette University / Medical College of Wisconsin, Milwaukee, WI, ²Kobe University Graduate School of Medicine, Kobe, JAPAN.

MS463 Characterization of Essential Tremor in Seven Degrees of Freedom of the Upper Limb

D. Geiger, S. K. Charles;
Brigham Young University, Provo, UT.

MS464 How Important is the Smooth Transition of Pericellular Matrix Properties to the Chondrocyte Microenvironment? A Multiscale Finite Element Study of Healthy and Osteoarthritic Cases.

S. C. Sibole, W. Herzog;
University of Calgary, Calgary, AB, CANADA.

MS465

Network Modeling Approach to Predict Myofibroblast Differentiation

A. K. Schroer, W. Merryman;
Vanderbilt University, Nashville, TN.

MS466 More sustained neuromuscular activation patterns during gait are associated with obesity

P. Amiri, C. Hubble-Kozey, M. Dunbar, W. Stanish, J. Astephen Wilson;
Dalhousie University, Halifax, NS, CANADA.

MS467 Variability structure in hand-rim peak force during manual wheelchair propulsion: A pilot study.

Y. Moon, C. Jayaraman, J. J. Sosnoff;
University of Illinois at Urbana-Champaign, Urbana, IL.

MS468 Muscular Stabilization Strategies associated with Knee-osteoarthritis

H. J. Bigham, T. E. Flaxman, A. J. J. Smith, D. L. Benoit;
University of Ottawa, Ottawa, ON, CANADA.

MS469 Importance of hydration on enhancing corneal properties due to riboflavin UVA-induced collagen crosslinking treatment

A. Rahimi, H. Hatami-Marbini;
Oklahoma State University, Stillwater, OK.

MS470 Glenohumeral Joint Kinematics During Activities of Daily Living (ADLs) Following Single Tendon Rotator Cuff Repair

R. Inawat¹, J. Fritz¹, B. Slavens², L. Rankine³, D. Mickshl³, S. Grindel³, S. Tarima⁴, G. Harris¹;

¹Orthopaedic and Rehabilitation Engineering Center, Marquette University/Medical College of Wisconsin, Milwaukee, WI, ²Rehabilitation Research Design and Disability (R2D2) Center, University of Wisconsin-Milwaukee, WI, ³Department of Orthopaedic Surgery, Medical College of Wisconsin, Milwaukee, WI, ⁴Division of Biostatistics, Medical College of Wisconsin, Milwaukee, WI.

MS471 Morphology and Density Variations in Bi-Concave Osteoarthritic Glenoids

N. K. Knowles, L. Ferreira, G. Athwal;
Western University, London, ON, CANADA.

MS472 Finite element analysis of bone stresses after an implantation of a new design of porous titanium coated hip prosthesis

J. Garcia¹, N. Nuño¹, C. M. Atienza², M. Utrera²;
¹École de technologie supérieure - Laboratoire de recherche en imagerie et orthopédie, Montréal, QC, CANADA, ²Instituto de Biomecánica de Valencia and Ciber-Bioingeniería, Biomateriales y Nanomedicina, Valencia, SPAIN.

MS473 Induced Kinetic Adaptations During Sit-to-Stand Using a Robotic Exoskeleton

J. M. Elrod, T. McGuirk, C. Patten;
University of Florida, Gainesville, FL.

MS474 Alterations of Relative Muscle Activation (Contributions) in Straight and Revolution Gaits due to Hemiplegia

D. Lim¹, H. Jung¹, S. Lee²;
¹Sejong University, Seoul, REPUBLIC OF KOREA, ²Inje University, Gimhae, REPUBLIC OF KOREA.

MS475 Modifiable determinants of physical function in older women with knee osteoarthritis

A. B. Kuntz, E. G. Wiebenga, E. C. Brenneman, H. S. Longpre, M. R. Maly;
McMaster University, Hamilton, ON, CANADA.

MS476 The effect of age and seat height on sit-to-stand transfer lower limb and trunk biomechanics and muscle activation

S. T. Hurley, D. J. Rutherford, C. L. Hubble-Kozey;
Dalhousie University, Halifax, NS, CANADA.

MS477 Movement related increases in toe arterial blood pressure during cycling: the effect of mechanical power output and cycling cadence

J. Goreham, D. Kimmerly, M. Ladouceur;
Dalhousie University, Halifax, NS, CANADA.

MS478 Transport and Deposition of Non-Spherical Aerosols in Pulmonary Acinar Airways

L. Shachar Berman, P. Hofemeier, Y. Delorme, S. Frankel, J. Sznitman;
Technion, Haifa, ISRAEL.

MS479 Experimental Measurement of the Progression of Vertebral Fracture Under Anterior Flexion

T. M. Jackman, A. I. Hussein, E. F. Morgan;
Boston University, Boston, MA.

MS480 Audio and Visual Biofeedback as Methods of Gait Retraining to Reduce Tibial Acceleration upon Foot Strike

A. M. Morgan, C. M. Meinerz, P. J. Malloy, C. F. Geiser, K. Kipp;
Marquette University, Milwaukee, WI.

MS481

The Impact of Headgear on the Effectiveness of a Female Soccer Header

J. Batty¹, J. White²;
¹U.S. Army Natick Soldier Research, Development and Engineering Center, Natick, MA, ²University Of Portsmouth Department of Sport and Exercise Science, Portsmouth, UNITED KINGDOM.

Monday Poster Session - MS Poster Competition

MS482 Effects of fatigue, extended duration exercise, and variation of size and geometry of SCBA pack on firefighters' ability to cross stationary obstacles

M. J. Angelini¹, R. M. Kesler², M. N. Petrucci¹, K. S. Rosengren³, G. P. Horn², E. T. Hsiao-Wecksler¹;
¹University of Illinois at Urbana-Champaign, Urbana, IL,
²Illinois Fire Service Institute, Champaign, IL,
³Northwestern University, Evanston, IL.

MS483 Mechanical Properties of Nanofibered PVDF Membrane, Yarn and Coil

j. huang, A. Dyson, M. Baniyadi, M. Jolandan;
University of Texas Dallas, Dallas, TX.

MS484 Study of Collagen Structure Remodeling in Response to Tension in Wound Healing Process Using a Novel Three-Dimensional Culture Model for Fibroblast

K. Shikano, S. Miyata;
Keio University, Yokohama, JAPAN.

MS485 Tensile property of stem cell-based self-assembled tissues (scSAT) cultured on a

nanoperiodic structured titanium surface

Y. Tani¹, K. Oya², N. Sugita³, N. Nakamura³, H. Fujie¹;
¹Tokyo Metropolitan University, Tokyo, JAPAN, ²Tokai University, Kanagawa, JAPAN, ³Osaka University Medical School, Osaka, JAPAN.

MS486 Optimization of Human Decellularized Adipose Tissue for Human Breast Implantation

E. Omid, L. Flynn, A. Samani;
Western University of Ontario, London, ON, CANADA.

MS487 Mechanisms of tumor cell extravasation in an in vitro microvascular network platform

M. B. Chen, J. Jeon, J. Whisler, R. Kamm;
Massachusetts Institute of Technology, Cambridge, MA.

MS488 Head FE models to evaluate primary response to blast loading and protection

D. Singh, D.S. Cronin;
University of Waterloo, ON, CANADA.

ADHESION

M24 Distinct Binding Kinetics of Mac-1 and LFA-1 in Neutrophil Activation
N. Li, D. Mao, M. Wang, S. Lü, C. Tong, Y. Zhang, M. Long;
Center of Biomechanics and Bioengineering and Key Laboratory of Microgravity (National Microgravity Laboratory), Institute of Mechanics, Chinese Academy of Sciences, Beijing, CHINA.

BASIS OF DISEASE

M25 Assessment and Regulation of Cellular Mechanics during Metastasis in Epithelial to Mesenchymal Transition Models
L. I. Volakis, R. Zielinski, R. Li, D. A. Kniss, S. N. Ghadiali;
The Ohio State University, Columbus, OH.

BIOIMAGING & BIO-OPTICS

M26 Two-dimensional Brain Deformation in Specific Anatomical Regions During Mild Angular Head Acceleration
A. K. Knutsen¹, E. Magrath¹, J. McEntee¹, F. Xing², J. L. Prince², P. V. Bayly³, J. Butman⁴, D. L. Pham¹;
¹The Henry M. Jackson Foundation, Bethesda, MD, ²Johns Hopkins University, Baltimore, MD, ³Washington University, St. Louis, MO, ⁴National Institutes of Health, Bethesda, MD.

M27 A two-dimensional laser diffraction scanner for quantifying sarcomere length variability in whole muscle sections
S. O'Connor, R. Lieber;
University of California, San Diego, San Diego, CA.

M28 Image Processing on Magnetic Resonance Images of Female Pelvic Cavity using Deformable Models
J. M. Tavares, R. M. N. Jorge, Z. Ma;
Faculdade de Engenharia da Universidade do Porto, PORTUGAL.

M29 4-Dimensional Ultrasound Imaging of Left-Ventricular Dynamics
F. W. Damen¹, Y. T. Delorme², S. H. Frankel², P. P. Vlachos³, C. J. Goergen¹;
¹Biomedical Engineering, Purdue University, West Lafayette, IN, ²Mechanical Engineering, Technion – Israel Institute of Technology, Haifa, ISRAEL, ³Mechanical Engineering, Purdue University, West Lafayette, IN.

M30 A comparison of standard and telecentric lenses for use in 3D digital image correlation strain measurements
R. Kope, L. Ferreira, S. Bashar;
Western University of Canada, London, ON, CANADA.

BIO-INSPIRED DESIGN

M31 Transtibial Liner Donning System
S. B. Sutherland, J. Simonson, J. Rainey, A. Labrum, M. Guthrie;
University of Idaho, Moscow, ID.

BIOMATERIALS

M32 A novel shear flow-based method to measure tissue and cell stiffness
Y. Hu, E. Bartolák-Suki, T. Wellman, C. L. N. de Oliveira, B. Suki;
Boston University, Boston, MA.

M33 Fabrication of 3D mesh structure for biodegradable drug-eluting stent by rapid prototyping
S. Park, J. Lee, W. Kim;
Korea Institute of Machinery & Materials, Daejeon, REPUBLIC OF KOREA.

M34 Designing nanofibrous materials for bioscience and medical applications
H. Zhu;
Cardiff University, UNITED KINGDOM.

M35 Viscoelastic effects of silicone gels on cellular traction force measurements
K. Kenry, M. Leong, M. Nai, F. Cheong, C. Lim;
National University of Singapore, SINGAPORE.

M36 Are We Performing Mechanical Tests Correctly on Ceramic Cements? - A Study on Calcium Sulphate Dihydrate
I. Koh¹, A. Lopez², B. Helgason¹, S. Ferguson¹;
¹Institute for Biomechanics, ETH-Zurich, Zurich, SWITZERLAND, ²Division of Applied Materials Science, The Ångström Laboratory, Uppsala University, SWEDEN.

M37 Assessing Local Ca²⁺ Concentrations in Calcium Phosphate Scaffolds by Computational Modelling
V. Manhas¹, Y. Guyot¹, Y. Chai², G. Kerckhofs¹, J. Schrooten², L. Geris¹;
¹University of Liege, BELGIUM, ²KULeuven, BELGIUM.

M38 The Effect of Fluid Shear Stress on in vitro Degradation of Poly(lactide-co-glycolide) Acid Membrane
Z. Chu, Q. Zheng, P. Xu, M. Guo, Y. Hou, Y. Fan*;
Key Laboratory for Biomechanics and Mechanobiology of Ministry of Education, School of Biological Science and Medical Engineering, Beihang University, Beijing, CHINA.

M39 Active Biomaterial Cues for Directed Neurite Outgrowth.

H. G. Sundararaghavan, T. J. Whitehead, M. R. Wrobel;
Wayne State University, Detroit, MI.

BIOMECHANICAL INSTRUMENTATION

M40 A comparison of alternative 3D marker sets for tracking pelvic motion during gait

P. Bruno, J. Barden;
University of Regina, SK, CANADA.

M41 A Compact Apparatus for Stimulation of Endothelial Cells with Patient Specific Flow Patterns

M. Franzoni¹, I. Cattaneo¹, A. Remuzzi²;
¹IRCCS - Istituto di Ricerche Farmacologiche Mario Negri, Bergamo, ITALY, ²Department of Industrial Engineering, University of Bergamo, Dalmine (Bergamo), ITALY.

M42 Method And Apparatus For Creating In-Vitro Pulsatile Flow In Test Loops

R. Slazas;
Codman Neuro, Miami, FL.

M43 A first look at a closed loop IMU and FSR based feedback system for delivery of functional electrical stimulation during walking

N. Zahradka¹, A. Behboodi¹, K. Lenoir¹, M. S. Marion¹, H. Wright¹, A. Zarkou¹, M. Torres¹, E. Sazonov², S. C. K. Lee¹;
¹University of Delaware, Newark, DE, ²University of Alabama, Tuscaloosa, AL.

M44 Investigation on Actuation and Detection Mechanism of a Dental Osseointegration Detection Device

T. Chia¹, C. Chen², M. Pan¹;
¹National Central University, Jhongli, TAIWAN, ²Sijhih Cathay General Hospital, New Taipei City, TAIWAN.

M45 An Electrical Power Supply System for Instrumented Hip Joint Prostheses

M. Soares dos Santos¹, J. A. F. Ferreira², D. R. Fernandes², A. Ramos¹, J. A. O. Simões²;
¹Centre for Mechanical Technology and Automation, University of Aveiro; Department of Mechanical Engineering, University of Aveiro, PORTUGAL, ²Department of Mechanical Engineering, University of Aveiro, PORTUGAL.

M46 Reliability of Tekscan Sensors for Measuring Pressure Distribution on the Skin of Human Subjects

P. D. Wettenschwiler¹, R. Stämpfli¹, S. Lorenzetti², S. J. Ferguson², R. Rossi¹, S. Annaheim¹;
¹Empa, Swiss Federal Laboratories for Materials Science and Technology, St. Gallen, SWITZERLAND, ²Institute for Biomechanics, ETH Zurich, SWITZERLAND.

M47 An in vitro Experimental Model to Evaluate the Biomechanical Function of Meniscus Repair Methods.

M. Stanley, L. Jennings, E. Ingham, J. Fisher;
Institute of Medical and Biological Engineering, Leeds, UNITED KINGDOM.

M48 Deviation from True Body Temperature at Temperature Measuring Sites: Theoretical Simulation of the Temperature Field in Human Bodies of Various Sizes

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M49 Biomechanics in Manual Wheelchair Propulsion on a Brake-Type Dynamometer

J. Ryu¹, J. Son¹, S. Hwang², Y. Kim¹;
¹Yonsei University, Wonju, REPUBLIC OF KOREA, ²University of Pittsburgh, PA.

M50 A Large-Animal Isolated Assisted Heart for Studies of the Interaction between Heart and Cardiac Assist Devices: Influence of Pump Speed on Ventricular Mechanics.

M. Granegger, S. Mahr, J. Horvat, P. Aigner, D. Zimpfer, H. Schima, F. Moscato;
Medical University of Vienna, AUSTRIA.

M51 A New Fall Risk Monitoring Tool: Wireless Classification of Step and Spin Turns Using a Trunk and Shank / Foot Mounted IMUs

P. Fino, C. Frames, T. E. Lockhart;
Virginia Tech, Blacksburg, VA.

M52 A Novel In Vitro Joint Load Simulator To Study Joint and Orthopedic Device Behaviors During Highly Dynamic Motions

J. Hausselle, J. Green, P. Power, R. V. Gonzalez;
The University of Texas at El Paso, El Paso, TX.

M53 Biomechanical Effect of an Unilateral Stabilization of the Subaxial Cervical Spine

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¹Aesculap AG, Tuttlingen, GERMANY, ²Schön Clinic Eilbek, Hamburg, GERMANY.

M54 An IMU-Based Method for Quantifying Gait: Algorithm Development and Comparisons to Motion Capture and Instrumented Treadmill Data

S. M. Cain, R. S. McGinnis, S. P. Davidson, R. V. Vitali, S. G. McLean, N. C. Perkins;
University of Michigan, Ann Arbor, MI.

M55 A new method for high resolution non-contact heart valve deformation analysis

S. Heide-Jørgensen¹, K. Krishna¹, J. Taborsky¹, T. Bechsgaard¹, J. Hønge², R. Zegdi³, P. Johansen¹;
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M56 A SPARSE MOTION CAPTURE DEVELOPMENT PLATFORM ACCURATELY PREDICTS LOWER EXTREMITY BIOMECHANICS DURING AN OCCUPATIONAL LIFTING TASK.

J. M. Leonardis¹, E. W. Sinsel¹, K. Werner², T. M. Kepple², H. J. Sommer, III³, F. L. Buczek¹;
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M57 Accelerometer Calibration for Self-Contained Remote Gait Analysis System

T. Simpson¹, J. Gong¹, J. Lach¹, B. Bennett²;
¹University of Virginia, Charlottesville, VA, ²Northwestern Health Sciences University, Bloomington, MN.

M58 A Wearable Optical Gait Analysis System Using Smartphone Camera To Assess Spatio-Temporal Parameters

A. Kim, J. Kim, S. Rietdyk, B. Ziaie;
Purdue University, Lafayette, IN.

M59 Non-invasive Biomechanical Monitoring of Bone Healing in a Dynamized Bone Defect in Sheep

U. Eberli, R. Schwyn, M. Ernst, M. Windolf, V. Stadelmann;
AO Research Institute, Davos Platz, SWITZERLAND.

M60 Application of Synchronized Immersive Virtual Reality on Postural Balance Assessment And Training

H. Ay, D. Petit, N. Berme, S. Z. Barnes;
Bertec Corporation, Columbus, OH.

M61 A new measurement device to detect bending stress at the human foot during footwear conditions

T. Stief¹, K. Peikenkamp²;
¹German Association of Orthopedic Footwear Technology, Hannover, GERMANY, ²University of Applied Sciences Muenster, GERMANY.

M62 Tracking Accuracy of Two Motion-Capture Systems Assessed Using Accurately Presented Circular Motion.

B. S. R. Armstrong¹, B. C. Tesch¹, T. P. Kusik², R. T. Barrows², K. M. O'Connor¹;
¹UW Milwaukee, WI, ²Metria Innovation, Milwaukee, WI.

M63 An Instrumented Skin Patch for Measuring Linear and Angular Kinematics in Sports Head Impacts

V. Nangia, L. C. Wu, D. B. Camarillo;
Stanford University, Stanford, CA.

BIOMECHANICS OF FLIGHT & SWIMMING

M64 A Study on the Flight Control of a Flapping Butterfly using Experiments and Numerical Models

K. Senda¹, N. Yokoyama¹, S. Lee¹, H. Yamamoto¹, T. Obara², T. Nishikata², N. Hirai³, M. Iima⁴;
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M65 Aerodynamic Ground Effect in Fruit Fly Takeoff

D. Kolomenskiy¹, M. Maeda², H. Liu², T. Engels³, K. Schneider³, J. C. Nave¹;
¹The Department of Mathematics and Statistics, McGill University, Montreal, QC, CANADA, ²Graduate School of Engineering, Chiba University, JAPAN, ³Laboratoire de Mécanique, Modélisation et Procédés Propres (M2P2), CNRS et Aix-Marseille Université, Marseille, FRANCE.

M66 Tuning of Flow-sensitive Hairs to Airflow Stimuli in the Desert Locust (*Schistocerca gregaria*)

F. McCorkell¹, M. Doube², G. Taylor¹, R. Bomphrey²;
¹University of Oxford, UNITED KINGDOM, ²Royal Veterinary College, London, UNITED KINGDOM.

M67 Wing wear and tear in dragonflies: How does the reduction of wingspan and chord length affect flight biomechanics and predation success?

M. K. Salcedo¹, S. A. Combes¹, D. E. Rundle¹, J. M. Iwasaki²;
¹Harvard University, Cambridge, MA, ²University of Otago, Dunedin, NEW ZEALAND.

M68 Biomechanical Analysis of the Underwater Gliding and Dolphin Kick Movement in Competitive Swimmers

T. Wada¹, N. Yamamoto², T. Isaka³, Y. Shintaku⁴, Y. Kashiwagi⁵;
¹Kokushikan University, Tokyo, JAPAN, ²Japanese Red Cross Hokkaido College of Nursing, Kitami, JAPAN, ³Ritsumeikan University, Kusatsu, JAPAN, ⁴Biwako Seikei Sport College, Ootsu, JAPAN, ⁵Nippon Sport Science University, Tokyo, JAPAN.

BIOMEMS & BIOSENSORS

M69 An improvement of the Paramecium's motion control accuracy

A. Ito, H. Yoshizawa;
Tokyo Denki University, JAPAN.

M70 Assessing Fall-Detection Technology for Use in Clinical Trials

S. Patel¹, A. Puiatti², J. Niemi³, L. Williamson⁴, A. Nelson⁴, R. Roubenoff⁴, J. Goldhahn⁴, P. Bonato¹;

¹Harvard Medical School, Charlestown, MA, ²University of Applied Sciences and Arts of Southern Switzerland, Manno, SWITZERLAND, ³Wyss Institute for Biologically Inspired Engineering, Harvard University, Boston, MA, ⁴Translational Medicine, Novartis Institutes for Biomedical Research, Cambridge, MA.

BONE

M71 An algorithm to map elastic constants in the human femur

F. Levrero Florencio¹, E. Sales¹, P. Srivastava², P. Jenkins¹, P. Pankaj¹, H. Simpson¹;

¹The University of Edinburgh, UNITED KINGDOM, ²Snow and Avalanche Study Establishment, Manali, INDIA.

M72 Assessment of anisotropic viscoelastic and viscoplastic mechanical behavior of human cortical bone by nanoindentation.

S. JARAMILLO-ISAZA, P. MAZERAN, K. EL KIRAT, M. HO BA THO;

University of Technology of Compiègne, FRANCE.

M73 A study on the quantitative relationship between mineral density and Young's Modulus of Chinese cancellous bone

D. Wang¹, F. Wang², J. Wang², Y. Li¹, Q. Wang²;

¹School of Mechanical Engineering, Shanghai Jiao Tong University, Shanghai, CHINA, ²First People's Hospital Affiliated to Shanghai Jiao Tong University, Shanghai, CHINA.

M74 Finite element analysis in metastatic bone disease: An in vivo sensitivity analysis on yield definitions.

L. C. Derix¹, Y. M. van der Linden², A. Snyers¹, T. Rozema³, D. Janssen¹, B. H. W. Schreuder¹, R. S. Kaatee⁴, N. Verdonschot¹, E. Tanck¹;

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M75 Modelling of Fracture Accumulation in Microstructured Cortical Bone During High Strain Rate Loading

S. Li, A. M. J. Bull;

Imperial College, London, UNITED KINGDOM.

M76 Strontium Ranelate Fully Prevents Alteration of Bone Mechanical Properties in Response to Cyclical Loading

P. Ammann, R. Rizzoli;

Division of Bone Diseases, University Hospital Geneva, SWITZERLAND.

M77 A Longitudinal Study of Biomechanical Modifications in Women with Normal and Compromised Bone Health

L. A. Burt¹, H. M. Macdonald², D. A. Hanley³, S. K. Boyd¹;

¹Department of Radiology, Faculty of Medicine, McCaig Institute for Bone and Joint Health, University of Calgary, AB, CANADA, ²Department of Orthopaedics, Child & Family Research Institute, University of British Columbia, Vancouver, BC, CANADA, ³CaMos Centre Director, Departments of Medicine, Community Health Sciences, and Oncology, University of Calgary, AB, CANADA.

M78 Weight Optimization of a Total Knee Replacement (TKR) Implant Using Numerical Simulation

G. R. Srinivas¹, A. Deb¹, M. N. Kumar²;

¹Indian Institute of Science, Bangalore, INDIA, ²Hosmat Hospital, Bangalore, INDIA.

M79 A computational simulation of Resident's ridge formation due to anterior cruciate ligament force

Y. Takahashi¹, H. Fujie², K. Nakata³, K. Shino⁴, S. Hashimoto¹;

¹Kogakuin University, Tokyo, JAPAN, ²Tokyo Metropolitan University, Tokyo, JAPAN, ³Osaka University Medical School, JAPAN, ⁴Osaka Yukioka College of Health Science, JAPAN.

M80 A natural, seaweed derived, mineral supplement (Aquamin F) preserves bone structure, composition and strength in an ovariectomised rat model of osteoporosis

O. Brennan¹, A. Widaa¹, D. O'Gorman², F. J. O'Brien¹;

¹Royal College of Surgeons in Ireland, Dublin, IRELAND, ²Marigot Ltd, Cork, IRELAND.

M81 An invitro study of apoptosis, RANKL production and OPG production after the application of a planar defect to represent microdamage.

C. M. Dooley, D. Taylor;

Trinity College Dublin, IRELAND.

M82 Subchondral Bone Stresses under Impact Loading: Three-Dimensional Micro-Computed Tomography Image-Based Finite-Element Modeling

F. Malekipour, D. Oetomo, P. Vee Sin Lee;

The university of Melbourne, AUSTRALIA.

M83 Age and Sex Differences in Femoral Neck Strength are Explained by Specific Patterns of Femur Shape and BMD Distribution

T. L. Bredbenner¹, A. E. Nicholls¹, D. E. Moravits¹, J. A. K. Harris², S. M. Levine², T. D. Eliason¹, L. M. Havill², D. P. Nicolella¹;

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M84 Synchronization between left and right prefrontal oxyhaemoglobin fluctuations investigated by wavelet coherence analysis in elderly subjects with hypertension

Z. Li¹, M. Zhang², R. Cui¹, W. Li¹, Q. Han¹, Y. Gao¹;
¹Shandong University, Jinan, CHINA, ²The Hong Kong Polytechnic University, Hong Kong, CHINA.

CARDIOVASCULAR FLUIDS

M85 A Prospective Study of the Relationship Between Wall Shear Stress and Atherosclerotic Plaque Transformation

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¹Georgia Institute of Technology, Atlanta, GA, ²Emory University, Atlanta, GA.

M86 An Experimental Evaluation of emboli Trajectories and Dynamics Within the Circle of Willis Under Pulsatile Flow Conditions

P. G. Fahy¹, J. Thornton², P. McCarthy³, N. Hynes⁴, S. Sultan⁴, E. McCarthy¹, P. Delassus¹, L. Morris¹;
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M87 Assessing Arteriovenous Fistula Maturation using Magnetic Resonance Imaging and Computational Fluid Dynamics

L. D. Browne, K. Bashar, P. Griffin, S. Walsh, M. Walsh;
University of Limerick, IRELAND.

M88 The thermodynamic analysis of vasomotion

Y. Liu¹, J. Lu²;
¹The Hong Kong Polytechnic University, Kowloon, HONG KONG, ²City University of Hong Kong, Kowloon, HONG KONG.

M89 Are carotid plaques with intraplaque hemorrhage different in plaque size, distribution and shear stress?

Z. Kassar, L. Speelman, F. Gijzen, M. Selwaness, M. Cibis, A. van der Steen, A. van der Lugt, J. J. Wentzel;
ErasmusMC, Rotterdam, NETHERLANDS.

M90 A Novel Framework for Classifying Wall Shear Stress Phenotypes in Arterial Disturbed Blood Flow

Y. Shimogonya¹, K. Valen-Sendstad², D. A. Steinman²;
¹University of Hyogo, JAPAN, ²University of Toronto, ON, CANADA.

M91 A Hybrid Experimental/Computational Approach to Modelling Microhaemodynamics

J. M. Sherwood¹, S. Balabani²;
¹Imperial College London, UNITED KINGDOM, ²University College London, UNITED KINGDOM.

M92 Assessment of Arteriovenous Fistula Functionality using Hemodynamic Based Diagnostic Parameters

E. Rajabi-Jaghargh, R. Banerjee; Mechanical and Materials Engineering Department, University of Cincinnati, OH.

M93 Approaching Diastolic Dysfunction with a MRI-based Analysis of Aortic Morphometry

D. Gallo¹, O. Vardoulis², D. Piccini³, P. Monney⁴, G. Bonanno³, J. Schwitter⁵, N. Stergiopoulos², U. Morbiducci¹;
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M94 Effect of Flow Characteristics on Hemolysis in Medical Device Models

L. Herbertson¹, R. Breithaupt¹, S. Olia², A. Paraloglou¹, A. Daly², M. Li¹, M. Kameneva², R. Malinauskas¹;
¹U.S. Food & Drug Administration, Silver Spring, MD, ²University of Pittsburgh, PA.

CARDIOVASCULAR SOLIDS

M95 A Three-Dimensional Regional Strain Computation Method with Displacement ENcoding with Stimulated Echoes in Non-Ischemic Dilated Cardiomyopathy Patients and Healthy Subjects Validated in Reference to Tagged MRI

J. Kar, A. K. Knutsen, B. P. Cupps, M. K. Pasque;
Washington University, St. Louis, MO.

M96 A Cylindrical Model of Left Ventricle Based on a Kinetic Model of Cardiac Muscle

F. A. Syomin, A. K. Tsaturyan;
Institute of Mechanics, Lomonosov Moscow State University, RUSSIAN FEDERATION.

M97 A Modified Holzapfel-Ogden Law for a Residually Stressed Finite Strain Model of the Human Left Ventricle in Diastole

X. Y. Luo¹, H. M. Wang², H. Gao¹, B. E. Griffith³, B. Colin¹, R. W. Ogden¹, T. Wang⁴;
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M98 An Experimental and Modeling Study of the Biomechanical Behavior of Arterial Elastin in Glucose

Y. Wang¹, S. Zeinali-Davarani¹, Y. Zhang^{1,2};
¹Mechanical Engineering, Boston University, MA, ²Biomedical Engineering, Boston University, MA.

M99 An Experimental and a Simulation Study of an Aortic Aneurysm in a Zebrafish Heart

P. Saboori, C. Alcaraz;
Manhattan College, Riverdale, NY.

M100 Adhesion Strength of Plaques in a Collagen VIII Deficient Mouse Model of Atherosclerosis

L. A. Davis¹, J. Lopes², B. Merei¹, M. P. Bendeck², S. M. Lessner¹;
¹University South Carolina, Columbia, SC, ²University of Toronto, ON, CANADA.

M101 A mechanistic model of dissection of human ascending thoracic aorta

S. Pal¹, A. Tsamis¹, S. Pasta², A. D'Amore¹, T. Gleason¹, D. Vorp¹, S. Maiti¹;
¹University of Pittsburgh, PA, ²Fondazione Ri.MED and DICGM University of Palermo, ITALY.

M102 A Novel Micro-to-Macro Approach for Cardiac Tissue Mechanics Modeling

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¹University of Western Ontario, London, ON, CANADA,
²University of Calgary, AB, CANADA.

M103 Aortic Cell and Tissue Micromechanics in a Mouse Model of Marfan Syndrome

J. Lee, S. Rao, E. Chu, F. Ramirez, K. D. Costa;
Icahn School of Medicine at Mount Sinai, New York, NY.

CARTILAGE

M104 The Effects of Collagen Fibril Orientation and Superficial Collagen Layer on the Fluid Pressure of Articular Cartilage

Q. Meng, S. An (Joint first author with QM), A. Jones, R. Wilcox, Z. Jin, J. Fisher;
University of Leeds, UNITED KINGDOM.

M105 ACL Multi-Planar Alignment Affects the Risk of Post-Traumatic Osteoarthritis Following ACL Surgery: An In Vivo Large Animal Study

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¹Sports Medicine Research Laboratory, Boston Children's Hospital, Harvard Medical School, Boston, MA,
²Bioengineering Labs, Warren Alpert Medical School of Brown University, Providence, RI.

M106 Finite Element Implementation of a Model for Finite Deformable, Biphasic Biological Tissues with Transversely Isotropic Statistically Distributed Fibers

J. Z. Wu¹, W. Herzog², S. Federico²;
¹National Institute for Occupational Safety and Health, Morgantown, WV, ²University of Calgary, AB, CANADA.

M107 Ambulation Ground Reaction Force Correlates with Articular Cartilage Metabolism

M. K. Seeley, W. M. Denning, M. B. Pardo, J. G. Winward, A. C. Parcell, C. S. Reese, J. T. Hopkins;
Brigham Young University, Provo, UT.

M108 Tribology of Osteochondral Graft Implantation

S. L. Russell, E. Ingham, J. Fisher;
Institute of Medical and Biological Engineering, Leeds, UNITED KINGDOM.

M109 Determination of mechanical properties of equine menisci during compressive loading

N. Ade, J. Schramel, I. Ribitsch, F. Jenner, C. Peham;
University of Veterinary Medicine, Vienna, AUSTRIA.

M110 Articular Cartilage Consolidation Increases after Acetabula Labrum Tear

Y. Kim, S. Park, D. Lee, K. Hong, Y. Song;
Korea University, Seoul, REPUBLIC OF KOREA.

CELL MOTILITY & NUCLEUS

M111 A mechanical model of the periodic motion of lamellipodia

S. He, B. Ji;
Beijing Institute of Technology, CHINA.

M112 Actomyosin pulls to advance the nucleus in a migrating tissue cell

J. Wu, I. A. Kent, N. Shekhar, T. Chancellor, A. Mendonca, R. B. Dickinson, T. P. Lele;
Univeristy of Florida, Gainesville, FL.

M113 Positional Fluctuations of Interphase Chromatin

A. Zidovska¹, D. A. Weitz², T. J. Mitchison¹;
¹Harvard Medical School, Boston, MA, ²Harvard University, Cambridge, MA.

COLLAGEN STRUCTURE & MECHANICS

M114 A Computational Analysis of the Effect of Hydroxyproline on Bound Water and the Stability of Collagen

M. Unal, O. Akkus;
Case Western Reserve University, Cleveland, OH.

COMPUTATIONAL BIOMECHANICS

M115 A Simulated Shared Achilles Tendon Alters Plantarflexor Muscle Function

J. R. Franz, D. Thelen;
University of Wisconsin-Madison, WI.

M116 3D parametric model of the proximal femur incorporating geometric and material properties: Patient-specific prediction of fracture risk

M. A. Perez, Mrs.¹, M. Remacha¹, A. Alberich-Bayarri²;
¹University of Zaragoza, SPAIN, ²Grupo Hospitalario Quiron, Valencia, SPAIN.

M117 Analysis of the Path-Dependent Nature of Thermo-Mechanical Stress in Cryopreservation Via Vitrification

D. P. Eisenberg, Y. Rabin;
Carnegie Mellon University, Pittsburgh, PA.

M118 A Virtual Dynamic Model of a Hip Joint Simulator to Predict the Severity of Edge Loading of the Head on the Rim of the Cup due to Variation in the Surgical Positioning

J. Leng, M. Al-Hajjar, R. K. Wilcox, A. L. Jones, D. C. Barton, J. Fisher;
University of Leeds, UNITED KINGDOM.

M119 A new methodology to obtain the biomechanical behavior of the human liver

F. Martínez-Martínez¹, M. Rupérez¹, M. Lago¹, C. Monserrat¹, J. Martín-Guerrero², E. Pareja³, S. Brugger³, R. López-Andújar³;
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M120 Towards Simulation of Whole Bone Microstructure Adaptation

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¹ETH Zurich, SWITZERLAND, ²SA Pathology and University of Adelaide, AUSTRALIA.

M121 Mechanical regulation of outside-in activation of I-domain-containing leukocyte integrins

D. Mao, S. Lü, N. Li, Y. Zhang, M. Long;
Center of Biomechanics and Bioengineering and Key Laboratory of Microgravity (National Microgravity Laboratory), Institute of Mechanics, Chinese Academy of Sciences, Beijing, CHINA.

M122 A computational biomechanics study to investigate the effect of myoelectric stimulation on peroneal muscles in preventing inversion-type ankle ligamentous sprain injury

S. Ha, D. Fong, K. Chan;
The Chinese University of Hong Kong, HONG KONG.

M123 The Effect of Subject-Specific MRI-based Models and Wrapping Surfaces on Hip Contact Forces

M. Wesseling¹, F. de Groot², L. Bosmans¹, C. Meyer³, K. Desloovere³, I. Jonkers¹;
¹Human Movement Biomechanics, Department of Kinesiology, KU Leuven, BELGIUM, ²PMA division, Department of Mechanical Engineering, KU Leuven, BELGIUM, ³Neuromotor Rehabilitation, Department of Rehabilitation Sciences, KU Leuven, BELGIUM.

M124 Transferring Anatomical Texture-Map between Bone Models based on Registration in Object Space and Parametric Space

C. Phan, S. Koo;
Chung-Ang University, Seoul, REPUBLIC OF KOREA.

M125 A numerical simulation of an osmotically-swollen/shrunk red blood cell

S. li, S. Wada;
Osaka University, JAPAN.

M126 A computational investigation of sacroiliac joint dislocation fixation <!-- EndFragment-->

C. Du¹, Y. Peng², P. Xiang¹, Y. Fan*¹;
¹School of Biological Science and Medical Engineering, Beihang University, Beijing, CHINA, ²Department of Orthopedics, Peking Union Medical College Hospital, Beijing, CHINA.

M127 An Automated Method for Feature Extraction and Subject-Specific Finite Element Modeling of the Lumbar Spine

J. Q. Campbell, A. J. Yoder, A. J. Petrella;
Colorado School of Mines, Golden, CO.

M128 Coupled Eulerian-Lagrangian Analysis of Needle Insertion into Biological Soft Tissue Accounting for Material Rupture

K. Li, B. Nandi, J. Yao, J. Hurtado, V. Oancea;
SIMULIA, Providence, RI.

M129 A Comparison of a Finite Element Model versus In Vitro Cases of a Lumbar Segment L3-L5 for Arthroplasty Applications

G. Albiter-Rodriguez, A. Vidal-Lesso, R. Lesso-Arroyo, R. C. Ramos-Santillano;
Instituto Tecnológico de Celaya, MEXICO.

M130 3D finite element lumbar spine modeling from 2-D images and statistical correlations

L. VENANCIO P C LIMA, P. ROUCH, V. Lafage, W. SKALLI;
Arts et Métiers ParisTech, Paris, FRANCE.

M131 Evaluation of Nasal Airflow and Resistance by Numerical Modeling

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¹Department of Otolaryngology, Tokai University, School of Medicine, Kanagawa, JAPAN, ²Graduate School of Tokai University, Kanagawa, JAPAN, ³Graduate School of Science and Technology, Tokai University, Kanagawa, JAPAN.

M132 A User Subroutine to be used with Abaqus to Solve Biphase Contact Problems

C. Maag, M. Hefzy, V. Kaul;
The University of Toledo, OH.

M133 Analytical Models Used to Predict Fatigue in OpenSim

M. A. Samaan, J. T. Weinhandl, S. A. Hans, S. Y. Bawab, S. I. Ringleb;
Old Dominion University, Norfolk, VA.

M134 Reliability of 3D Ultrasound for Measuring Parameters of Intrinsic Foot Muscle Models

E. Bell, J. Hibbert, P. Rider, A. Kulas, Z. Domire;
East Carolina University, Greenville, NC.

COMPUTATIONAL METHODS

M135 Analysis and Design of a Novel Stent for Tracheobronchial Cancer Treatment

D. J. McGrath, B. O'Brien, M. Bruzzi, P. McHugh;
Biomechanics Research Centre (BMEC), Biomedical Engineering, College of Engineering and Informatics, NUI Galway, IRELAND.

M136 Anatomically-Based Model Registration Using MRI and Structure Light Surface Data Reconstruction

T. Yeung¹, K. Mithraratne²;
¹Auckland Bioengineering Institute, University of Auckland, Auckland, NEW ZEALAND, ²Auckland Bioengineering Institute, University of Auckland, NEW ZEALAND.

M137 Analysis of Knee Osteoarthritis Ground Reaction Vertical Force During Stair Ascent: A Neural Network Approach

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¹Department of Surgery and Cancer, Imperial College London, UNITED KINGDOM, ²Department of Bioengineering, Imperial College London, UNITED KINGDOM.

M138 Evaluation of foot type classification from static foot pressure distribution data using discriminant analysis technique

P. R, Sr.¹, D. Joshi, Dr², S. Anand, Prof³;
¹National Institute of Technology Raipur, Chattisgarh, INDIA, ²Post-Doctoral Research Fellow, Bowerman Sports Science Clinic, Department of Human Physiology, University of Oregon, Eugene, OR, ³CBME, IIT Delhi, New Delhi, INDIA.

M139 Application of Data Mining in the Preparations for Marathon

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¹Polytechnic of Varaždin, CROATIA, ²Faculty of Kinesiology, Zagreb, CROATIA, ³Faculty of Electrical Engineering and Computing, Zagreb, CROATIA.

M140 Mechanical behavior of Gastroesophageal Reflux Disease; A Computational Modeling of Lower Esophageal Sphincter along with Stomach

P. Hajhosseini¹, M. Takaloozadeh²;
¹Islamic Azad University (Central Tehran Branch), Tehran, ISLAMIC REPUBLIC OF IRAN, ²Sharif University of Technology, Tehran, ISLAMIC REPUBLIC OF IRAN.

M141 2DOF Fixator System for Correcting Three-Dimensional Clubfoot Deformity

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¹Carnegie Mellon University, Pittsburgh, PA, ²Bone and Joint Center, Magee Women's Hospital, Pittsburgh, PA.

M142 A comparison of asymmetric and symmetric finite element model of cervical spine

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M143 Turbulence Quantification of Stenotic Blood Flow Using Image-Based CFD: Effect of Different Interventions

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M144 A Statistical Shape Atlas of the Surgically Reconstructed Aortic Arch in Patients with Hypoplastic Left Heart Syndrome

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M145 Fracture Modeling of Layered Ceramics Materials System

Z. Zhang, M. C. Thompson, W. Li, E. Li, M. Guazzato, C. Field, M. V. Swain, Q. Li;
The University of Sydney, NSW, AUSTRALIA.

M146 An Assessment of the Mechanical Properties of Human Vertebrae Trabecular Bone Using X-ray Microtomography and Finite Element Analysis: Direct Mechanics Approach

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CYTOSKELETON & CYTOSKELETAL MECHANICS

M147 Cell Blebs Induced By Nanoparticles

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M148 Transformation of Filopodia into Tunneling Nanotubes Involves Attenuation of Actin Dynamics and Adherens Junction Assembly

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M149 A High Content Microscopy Investigation of the Role of the Cytoskeleton in Mechanotransduction and Cell Morphology on Biocompatible Surfaces

K. K. McKayed, J. C. Simpson;
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DENTAL, ORAL, & MAXILLOFACIAL BIOMECHANICS

M150 Biomechanical Characterization of Abutment-Free Implant-Supported Fixed Dental Protheses

M. Karl, W. Winter;
University of Erlangen-Nuremberg, Erlangen, GERMANY.

M151 Diffusion Properties of a Novel Tooth Organ Culture Model for Periodontal Research

S. Junaid, R. El-Gendy, S. K. L. Lam, K. M. Elson, E. Ingham, J. L. Tipper, R. M. Hall, J. Kirkham;
University of Leeds, UNITED KINGDOM.

M152 Adaptation of the Mastication Mechanics to Small Differences in Food Consistencies: Insights from a Combined Jaw Kinematics/Electromyography Study.

B. J. D. Le Révérend, F. Saucy, M. Moser, C. Loret;
Nestle Research Center, Lausanne, SWITZERLAND.

ERGONOMICS AND HUMAN FACTORS

M153 Accuracy of a Modified Facepiece for Metabolic Data Collection From Firefighters

R. M. Kesler, E. T. Hsiao-Wecksler, R. W. Motl, G. P. Horn;
University of Illinois at Urbana-Champaign, IL.

M154 An Investigation of Leaning Behaviours During One-Handed Exertions with Extended Reaches

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M155 Characterization of Lower Extremity Joint Powers During Walking While Carrying Heavy Loads

J. F. Seay, S. G. Sauer, P. N. Frykman, R. E. Fellin;
U.S. Army Research Institute of Environmental Medicine, Natick, MA.

M156 Patient Mobility in Hospital Beds With and Without Side Rails

C. R. Wilson, J. Morse, N. Godfrey, A. Doig, M. Christman, D. Bloswick, A. Merryweather;
University of Utah, Salt Lake City, UT.

EXPERIMENTAL METHODS

M157 Blood Flow in a Bifurcation and Confluence Microchannel: Effect of the Cell-Free Layer in Velocity Profiles

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M158 A Novel Device for Application of Cyclic Stretch During Live Cell Imaging

J. Imsirovic, T. Wellman, E. Bartolak-Suki, B. Suki;
Boston University, MA.

FLUID-SOLID INTERACTIONS

M159 Transition Layer of Microvascular Flow and Implications for Mechanotransduction Through the Endothelial Surface Layer

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Tsinghua University, Beijing, CHINA.

M160 Assessing cement injection behavior in vertebroplasty: An in-vitro study using flow models

A. Bou Francis¹, A. López², C. Persson², R. M. Hall¹, N. Kapur¹;
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M161 Use of Fluid-Structure Coupling to Investigate the True Physiological Hemodynamics Experienced by Endothelial Cells in Synthetic Grafts

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GENERAL ANIMAL LOCOMOTION

M162 3D Reconstruction of Octopus Arm Swimming Motion

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M163 How Well can we Estimate Muscle Power from In-vitro Measurements?

R. Woledge, N. Curtin, T. West, R. Piercy, D. Goodwin;
Royal Vet College, London, UNITED KINGDOM.

M164 Landing on a Wall: Tail-mediated Transitions Stabilize Hard Landings in Lizards.

A. Jusufi¹, G. T. Byrnes², R. J. Full³;
¹University of Cambridge, UNITED KINGDOM, ²Siena College, Loudonville, NY, ³University of California at Berkeley, CA.

M165 Are turtles dynamically similar while walking at different submergence levels in water?

N. Mazouchova, S. Hsieh;
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GROWTH & REMODELING

M166 A Mechanical and Biochemical Model of Intimal Hyperplastic Lesions

R. Vandiver¹, P. Fok²;
¹St. Olaf College, Northfield, MN, ²University of Delaware, Newark, DE.

M167 A computational model for vein graft growth and remodeling: Response to altered hemodynamics

A. B. Ramachandra¹, S. Sankaran¹, J. D. Humphrey², A. L. Marsden¹;
¹University of California San Diego, La Jolla, CA, ²Yale University, New Haven, CT.

M168 A novel mathematical model for the micro-structural adaption of the collagen fabric during aneurysm evolution

J. Hornsby¹, H. Chen¹, M. Thompson¹, P. Watton²;
¹University of Oxford, UNITED KINGDOM, ²University of Sheffield & INSIGNEO, UNITED KINGDOM.

M169 Investigating the Role of Cell Signalling on Intracranial Aneurysm Evolution: A Novel Chemo-Mechanobiological Mathematical Model

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M170 An Inverse Finite Element Procedure for Subject-Specific Prediction of Bone Density Distribution in the Proximal Femur

A. Vahdati, J. Vander Sloten, G. H. van Lenthe;
KU Leuven, BELGIUM.

M171 Active Agonist Induced Contraction Affects Structural and Functional Remodeling of Large Elastic Arteries

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M172 Agent-based model of skeletal muscle tissue predicts immobilization-induced remodeling

K. S. Martin, S. Salinas Blemker, S. Peirce-Cottler;
University of Virginia, Charlottesville, VA.

HEART & HEART VALVES

M173 A Comparative Study of the Bending Properties of Porcine Mitral, Tricuspid, Aortic, and Pulmonary Valve Leaflets

B. Brazile, B. Wang, G. Wang, R. Bertucci, R. Prabhu, S. Patnaik, X. Shi, R. Butler, A. Claude, E. Brinkman-Ferguson, L. Williams, J. Liao;
Mississippi State University, MS.

M174 A Proper Orthogonal Decomposition-based Real-time Modelling of the Heart

R. R. Rama, S. Skatulla, B. D. Reddy;
University of Cape Town, SOUTH AFRICA.

M175 Afterload dependent increasing in crossbridge formation in ejecting rat heart

J. Shimizu¹, T. Miyasaka²;
¹Hiroshima International University, Higashi-Hiroshima, JAPAN, ²Shonan Institute of Technology, Fujisawa, JAPAN.

M176 A New Approach to Diagnosing Severity of Left-Ventricular Pressure Overloading Conditions: The Cardiovascular Efficiency Index

R. Simon-Walker, M. Dong, L. P. Dasi;
Colorado State University, Fort Collins, CO.

M177 A New Reinforced Fibrin Collagen Glycosaminoglycan Material to Resist Tissue Retraction in Heart Valves

C. M. Brougham¹, T. C. Flanagan², F. J. O'Brien¹;
¹Royal College of Surgeons in Ireland, Dublin, IRELAND,
²University College Dublin, IRELAND.

M178 A Computational Paradigm for Modeling the Functional Mitral Valve (MV) and MV Surgical Repair

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⁴University of Pennsylvania, Philadelphia, PA.

IMPLANTS

M179 A New Osteosynthesis with Variable Stiffness: Implant Dimensioning and It's Application in Sheep

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¹Hannover Medical School, GERMANY, ²Laer Zentrum Hannover e.V., GERMANY.

M180 Unique stability of femoral neck fractures treated with the novel method of biplane double-supported screw fixation. A biomechanical study

O. Filipov¹, M. Ernst², B. Gueorguiev²;
¹Orthopaedic Hospital Vitosha, Sofia, BULGARIA, ²AO Research Institute Davos, SWITZERLAND.

M181 Modelling of cardiovascular stents as lattice structures during deployment and recoil

A. Bonfanti, A. Bhaskar;
University of Southampton, UNITED KINGDOM.

M182 A biomechanical analysis of the distal bones in the radiocarpal arthroplasty under a physiological load condition

J. Miguel, A. Completo, A. Ramos;
University of Aveiro, PORTUGAL.

M183 Measuring micromotion in cementless arthroplasty using a digital volume correlation technique

C. Sukjamsri¹, D. M. Galdes¹, T. Gregory², U. Hansen¹;
¹Imperial College London, UNITED KINGDOM, ²Georges Pompidou European Hospital, Paris, FRANCE.

M184 A new CT scan protocol for studies of loosening of shoulder implants

U. Hansen¹, T. Gregory²;
¹Imperial College London, UNITED KINGDOM, ²George Pompidou Hospital, Paris, FRANCE.

INJURY BIOMECHANICS

M185 Determination of high risk impact sites on a Hybrid III headform by finite element analysis

K. L. Taylor;
University of Ottawa, ON, CANADA.

M186 A New Shortcoming of HIC, HIP and Improved Head Injury Criteria

S. Mansoor-Baghaei¹, P. Saboori², A. sadegh¹;
¹The City College of New York, NY, ²Manhattan College of New York, NY.

M187 A Comparison of Strength, ROM, Laxity, and Static Postural Control Between Those At-Risk and Healthy

E. Rullestad¹, H. Boley², S. Carey², M. Quinlevan², M. Terada², P. Gribble²;
¹Iowa State University, Ames, IA, ²University of Toledo, OH.

M188 Age Comparison of muscle activation patterns between pre-pubescent and post-pubescent female soccer players while performing unanticipated cutting maneuvers: Relevance to non-contact Anterior Cruciate Ligament (ACL) injuries

A. Fairfax, M. Del Bel, L. Stebeleski, S. Landry;
Acadia University, Wolfville, NS, CANADA.

M189 The influence of compliance on dynamic impact response and resulting brain tissue response.

M. Kendall¹, E. W. Walsh¹, M. D. Gilchrist², T. B. Hoshizaki¹;
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M190 Assessment of Ground Cover for Head Injury Prevention on a Playground

G. P. Danchik, C. D. DiDomenico, E. A. Kennedy;
Bucknell University, Lewisburg, PA.

M191 Weight-Bearing Dorsiflexion Range of Motion and Landing Biomechanics in Individuals with Chronic Ankle Instability

M. C. Hoch¹, K. E. Farwell¹, S. L. Gaven², J. T. Weinhandl¹;
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M192 Effect of Impact Location on Pre-Recoil Head Rotation Pattern and Brain Shear Strain

J. T. Eckner, Y. K. Oh, K. M. Curtis, M. S. Joshi, J. A. Ashton-Miller;
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M193 Difference between Human and BioRID-II Responses during Low Speed Rear-end Collision Simulation

D. Lim¹, L. Song¹, B. Lee¹, S. Hong², S. Kim³, H. Kim⁴;
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M194 A Cadaveric Study to Investigate the Loss of Anterior Shoulder Stability Due to Combined Bony Defects

P. Walia¹, R. M. Patel², M. Kuklis², A. Miniaci², M. H. Jones², S. D. Fening³;
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M195 Novel Numerical Methods to Assess Penetrating Injury via Finite Element Analyses

T. P. Harrigan, T. Nissley, C. Carneal, A. Golman, J. Zhang, A. Merkle;
Johns Hopkins University Applied Physics Laboratory, Laurel, MD.

M196 A Comparison of Cadaver Heads and Standard Headforms in Helmet Testing

S. J. Bonin¹, J. F. Luck², C. R. D. Bass², J. C. Gardiner³, A. Onar-Thomas⁴, S. S. Asfour¹, G. P. Siegmund⁵;
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M197 A novel cervical spine (head/neck) musculoskeletal model for dynamic load analysis during rugby scrummaging.

D. Cazzola, T. P. Holsgrove, E. Preatoni, K. A. Stokes, S. Gheduzzi, A. W. Miles, H. S. Gill, G. Trewartha;
University of Bath, UNITED KINGDOM.

M198 A hyper-reactivity of the central nervous system to unloading reaction in functional ankle instability

W. Liu¹, T. Jain¹, C. Wauneka²;
¹University of Kansas Medical Center, Kansas City, KS, ²University of Kansas, Lawrence, KS.

M199 Alteration and Failure of Cerebral Artery Internal Elastic Lamina following Mechanical Insult

M. Converse, T. Sommer, K. L. Monson;
University of Utah, Salt Lake City, UT.

M200 Assessment of Arm Motions with Fall Direction in Human Subjects

B. Krishnan, S. E. Wilson;
University of Kansas, Lawrence, KS.

M201 Assessment of Muscle Activity and Kinematics During a Controlled Descent on Outstretched Arms in Young Women.

L. J. Lattimer, J. L. Lanovaz, T. T. Treen, C. M. Arnold;
University of Saskatchewan, Saskatoon, SK, CANADA.

M202 A Multi-Modality Image Set for the Development of a 5th Percentile Female Finite Element Model

M. L. Davis, J. D. Stitzel, F. S. Gayzik;
Virginia Tech – Wake Forest University School of Biomedical Engineering, Winston Salem, NC.

M203 Progressive Validation of a High-Fidelity Human Lumbar Spine Finite Element Model

J. Zhang, R. Armiger, A. Merkle, C. Carneal, E. Ward, K. Ott, A. Wickwire, C. Dooley, T. Harrigan, J. Roberts;
The Johns Hopkins University Applied Physics Laboratory, Laurel, MD.

JOINTS

M204 Bilateral Differences in Lower Extremity Loading during Sit-to-Stand in Unilateral Hip OA Patients Before and After Total Hip Arthroplasty

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M205 Knee Simulator that Substitutes in-vivo Measurement Experiment

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¹Kyushu University, Fukuoka, JAPAN, ²Ariake National College of Technology, Omuta, JAPAN.

M206 A Model-based Study on the Kinematics of the Rat Knee

Q. Wei¹, T. G. Sandercock², M. Tresch²;
¹George Mason University, Fairfax, VA, ²Northwestern University, Chicago, IL.

M207 Patient Specific Mechanical Response of the Sacroiliac Joint under Compressive and Transverse Loads

D. E. Smith¹, N. Tindal², D. Enix³;
¹Baylor University, Waco, TX, ²University of Missouri, Columbia, MO, ³Logan University, Chesterfield, MO.

M208 A Microstructural Model for the Measurement of Cell-Level Deformations of Tendon

T. M. Grant, M. S. Thompson;
University of Oxford, UNITED KINGDOM.

LIGAMENT & TENDON

M209 All-Inside Anterior Cruciate Ligament Reconstruction Graft Link: A Comparative Biomechanical Study
R. Mayr, C. H. Heinrichs, M. Eichinger, V. Smekal, R. El Attal, W. Schmoelz;
Medical University Innsbruck, Innsbruck, AUSTRIA.

M210 Therapeutic Effects of Doxycycline on Biomechanics of Spontaneous Repair in Lacerated Achilles Tendon
Q. T. Nguyen¹, C. Eckstein¹, A. Graver¹, M. Drakos², D. A. Grande¹, N. O. Chahine¹;
¹Feinstein Institute for Medical Research, Manhasset, NY,
²Hospital for Special Surgery, Orthopedics, Manhasset, NY.

M211 AE Detection of Microdamage in Rabbit Patellar Tendon under Tensile Load at Various Strain Rates
F. MATSUOKA¹, T. SAKAI¹, S. WAKAYAMA¹, E. YAMAMOTO²;
¹Tokyo Metropolitan University, JAPAN, ²Kinki University, Wakayama, JAPAN.

M212 Analysis of ACL Fibrocartilage Entesis in Estrogen Receptor Beta Deficient Mice
J. Gordon¹, M. Xu², J. Chen², H. Lu³, S. Wadhwa²;
¹Columbia University College of Dental Medicine, New York, NY, ²Department of Orthodontics, Columbia University College of Dental Medicine, New York, NY, ³Columbia University Biomedical Engineering, New York, NY.

MECHANOBIOLOGY, RESPONSES TO MECHANICAL STRESS, AND MECHANOTRANSDUCTION

M213 Identification of Placental Growth Factor as a Mechanically Augmented Gene with a Pro-osteogenic Role in Mesenchymal Stem Cells
R. J. McCoy, A. Widaa, K. M. Watters, M. Wuerstle, R. L. Stallings, G. P. Duffy, F. J. O'Brien;
Royal College of Surgeons in Ireland, Dublin, IRELAND.

M214 Application of a Microfabricated Transwell Chamber with Integrated PDMS Micropost Arrays to Study the Mechanobiology During Transepithelial Migration of Leukocytes
J. Moeller, J. Sim, R. E. Wilson, W. I. Weis, A. R. Dunn, W. Nelson, B. L. Pruitt;
Stanford University, Stanford, CA.

M215 3-D Cell Geometry Regulates Podocyte Differentiation
E. U. Azeloglu¹, A. Ron², M. Hu², Y. Chen¹, P. Y. Chuang¹, R. E. Gordon¹, J. C. He¹, J. C. Hone², R. Iyengar¹;
¹Icahn School of Medicine at Mount Sinai, New York, NY,
²Columbia University, New York, NY.

M216 A coupled flow and vascular remodelling model for the study of vessel regression during angiogenesis
M. O. Bernabeu¹, J. M. Osborne²;
¹University College London, UNITED KINGDOM, ²University of Oxford, UNITED KINGDOM.

M217 Application of a Post-Exercise Massage-Mimetic Induces a Temporal Shift of the Inflammatory Response Following Repeated Eccentric Contractions
C. Waters-Banker¹, S. M. Abshire¹, E. E. Dupont-Versteegden¹, J. Sunday², T. A. Butterfield¹;
¹University of Kentucky, Lexington, KY, ²Clemson University, Clemson, SC.

MEDICAL DEVICES

M218 A Novel PEEK Total Knee Replacement for Long Term Bone Preservation: Evaluation of Femoral Bone Strains using Digital Image Correlation and Numerical Modelling
K. Rankin¹, A. S. Dickinson¹, A. Briscoe², M. Browne¹;
¹University of Southampton, UNITED KINGDOM, ²Invisio Ltd, Thornton Cleveleys, UNITED KINGDOM.

M219 A Novel Large Diameter Femoral Head for Soft-tissue Relief Maintains Load Bearing Contact Area, Frictional Characteristics and Wear Performance in Ceramic on Poly Articulation
M. P. Duffy, K. M. Varadarajan, T. Zumbunn, K. Wannomae, D. Chan, B. Micheli, H. E. Rubash, A. F. Freiberg, H. Malchau, O. K. Muratoglu;
Massachusetts General Hospital, Boston, MA.

M220 Severe Edge Loading and Increased Wear due to Surgical Mal-Positioning of Hip Joint Replacement Bearings
M. Al-Hajjar¹, S. Williams¹, L. M. Jennings¹, J. Thompson², E. Ingham¹, J. Fisher¹;
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M221 Mini-Plating Can Influence Compression Achieved In Long Bone Fracture Fixed With Dynamic Compression Plating (DCP)
J. Li¹, C. Schwartzbach¹, I. Iliev², R. Westbrook¹, M. Theiss¹;
¹Inova Fairfax Hospital, Falls Church, VA, ²Marshall University, School of Medicine, Huntington, WV.

M222 A quantitative ultrasound device to assess dental implant stability
R. Vayron, G. Haiat;
CNRS, Creteil, FRANCE.

M223 Application of Anatomical Based Biomedical Bench Model in Medical Device Development

H. Zhang, L. Wang;
Medtronic Corporation, Minneapolis, MN.

M224 A Scalable Actuator for the Dynamic Palpation of Soft Tissue for use in the Assessment of Prostate Tissue Quality

P. Scanlan¹, S. J. Hammer¹, D. W. Good², W. Shu¹, R. L. Reuben¹, S. Phipps², G. D. Stewart², S. A. McNeill²;
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M225 Mechanical properties sensing using compressed sensing MRI

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MICRO & NANO DEVICES

M226 A medium throughput device to study the effects of combinations of surface strains and fluid-flow shear stresses on cells

R. Sinha, S. Le Gac, N. Verdonschot, A. van den Berg, B. Koopman, J. Rouwkema;
University of Twente, Enschede, NETHERLANDS.

M227 A Drop-on-Demand Droplet Generator

C. Wang;
National Taiwan University, Taipei, TAIWAN.

M228 Nanotechnology-based Approach to Restoring Endothelial Glycocalyx and Combating Atherosclerosis

M. Cheng;
Northeastern University, Boston, MA.

MOLECULAR BASIS OF CARTILAGE MECHANICS

M229 Finite Element Analysis Reveals that the Regions of a Zebrafish Jaw under Maximal Strain Correspond to Regions of High Wnt Signalling

L. H. Brunt, E. Rayfield, C. Hammond;
University of Bristol, UNITED KINGDOM.

MOTOR CONTROL

M230 Adapting Gait Symmetry With Visually Guided Locomotor Training: 'Virtual' Split-Belt Walking Adaptation

J. T. Choi¹, P. Jensen², J. B. Nielsen²;
¹University of Massachusetts Amherst, MA, ²University of Copenhagen, DENMARK.

M231 A time-frequency approach for classification of transition direction and type during locomotion

D. Joshi, M. E. Hahn;
University of Oregon, Eugene, OR.

M232 Able Bodied Persons and Individuals with Transtibial Amputation Employ Similar Control Strategies in the Frontal Plane during Treadmill Walking

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M233 Age-related Changes in Trunk Neuromuscular Activation Patterns During a Controlled Functional Transfer Task

D. A. Quirk, C. L. Hubble-Kozey;
Dalhousie University, Halifax, NS, CANADA.

M234 Aging-related changes in neural function for grip relaxation: intracortical inhibition and spinal motoneuron excitability

B. Motawar, N. J. Seo;
University of Wisconsin-Milwaukee, WI.

M235 Assessment of Corticospinal Excitability of the Supraspinatus Muscle

Y. Lin, A. Christie, A. Karduna;
University of Oregon, Eugene, OR.

M236 The Control of Step Ascent During Walking: Effect of Movement Strategy

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M237 Control of Five Times Sit-to-Stand in Healthy and Diabetic Older Adults

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M238 A combinatorial optimization based method to minimize the tests required for the normalization of EMG values at the shoulder joint.

P. Marion, F. Dal Maso, M. Begon, T. Alenabi;
Université de Montréal, Laval, QC, CANADA.

M239 Transient Response of the Head Kinematics - Influence of a Disturbed Visual Flow

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¹Arts et Metiers ParisTech, Paris, FRANCE, ²Renault, Boulogne-Billancourt, FRANCE.

M240 Adaptation of Muscle Synergies While Learning to Direct Pedal Forces

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M241 Tuning of Volitional and Locomotor Muscle Synergy Structures Post-Stroke

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M242 Effects of Focus of Attention and Task Difficulty on Dart Throwing

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M243 Effects of degrees of freedom on dart throwing under task constraints

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M244 Age- and fatigue-related modifications to the magnitude and periodicity of neuromuscular noise

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M245 Tracking Motor Unit Firings during Dynamic Cyclic Contractions

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M246 Anticipatory Locomotor Adjustments Targeting Maneuverability May Enhance Stability

M. Wu, J. Matsubara, K. E. Gordon;
Northwestern University, Chicago, IL.

M247 A reflex-based model of the neuromuscular control of 3D human locomotion

S. Song, H. Geyer;
Carnegie Mellon University, Pittsburgh, PA.

M248 A virtual reality-based adaptive response technology for post-stroke motor learning under multi-level electrotherapy: a conceptual study

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M249 Assessing Learning to Balance in Inverted Stance: Traditional and Non-Linear Methods

G. M. Blenkinsop, M. G. T. Pain, M. J. Hiley;
Loughborough University, UNITED KINGDOM.

M250 A Quantitative Analysis of the Mechanisms that Control the Center of Pressure Movement in Unperturbed Upright Stance

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Norwegian University of Science and Technology, Trondheim, NORWAY.

M251 Walking Stability during Cognitive Tasks in Healthy Adults

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MULTI-CELL BEHAVIORS

M252 Agent-based modelling to simulate the early atheroma formation in hypercholesterolemia virtual patients with and without statins treatments

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Institute for Bioengineering of Catalonia, Barcelona, SPAIN.

MULTI-SCALE MODELING

M253 A 3D continuum model for smooth muscle excitation-contraction process

B. Sharifimajid, J. Stålhand;
Linköping University, SWEDEN.

M254 Multiscale Modelling of Bone Fracture Healing: Oxygen and Angiogenesis as Key Regulators of Non-Unions

A. Carlier¹, L. Geris², N. van Gastel¹, G. Carmeliet¹, H. Van Oosterwyck¹;
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M255 An Information-Theoretic Approach to Integrated Mechanistic-Empirical Modeling of Cellular Response based on Intracellular Signaling Dynamics

M. N. Mayalu, H. Asada;
Massachusetts Institute of Technology, Cambridge, MA.

M256 A biomechanical exploration of collagen fibre realignment associated with cancer spread using a three-dimensional multiscale finite element procedure

P. A. Wijeratne, V. Vavourakis, J. Hipwell, D. Hawkes;
University College London, UNITED KINGDOM.

**MUSCULOSKELETAL BIOMECHANICS AND
MUSCLES & MOTOR CONTROL**

M257 A 3D electro-mechanical continuum model for simulating skeletal muscle fatigue.

J. Grasa, M. Sierra, F. J. Miana-Mena, M. J. Muñoz, B. Calvo; Universidad de Zaragoza, SPAIN.

M258 Are Subject-Specific Musculoskeletal Models Robust to Parameter Identification? A Case Study using a Probabilistic Modeling Framework

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M259 Can Knee Biomechanics during Gait Predict Change in Pain One Year Later in Knee OA?

N. Brisson¹, N. Arora¹, K. Calder¹, S. Acker², M. R. Maly¹; ¹McMaster University, Hamilton, ON, CANADA, ²University of Waterloo, ON, CANADA.

M260 Carpal Tunnel Tissue Interaction during Wrist Flexion and Finger Loading

J. L. Gordon, J. N. Gabra, T. L. Marquardt, Z. Li; Cleveland Clinic, OH.

M261 Active Muscle Force is influenced by Muscle Compression

T. Siebert¹, O. Till², N. Stutzig¹, M. Günther¹, R. Blickhan²; ¹University of Stuttgart, GERMANY, ²Friedrich-Schiller University, Jena, GERMANY.

M262 A Generalized Method for Predicting Maximum 3D Neck Moments

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M263 A Novel Method for Functionally Dividing the Deltoid In Vivo

F. T. Sheehan¹, H. Im¹, S. Brochard², C. Pons², K. E. Alter¹; ¹National Institutes of Health, Bethesda, MD, ²Rehabilitation Medicine Department, University Hospital of Brest, FRANCE.

M264 A Modal Approach for Soft Tissue Artefact Mathematical Representation and Compensation

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M265 Age-Related Differences in Upper Body Reactions to Unexpected Slips

Z. Merrill, R. Cham, A. Chambers; University of Pittsburgh, PA.

M266 Non-invasive quantification of Triceps Surae muscle passive local stiffness: undergoing study in healthy subjects and patients with spasticity

I. Masson, A. Baron, P. Portero; University Paris-Est Creteil & Rothschild Hospital (AP-HP) Paris, Creteil, FRANCE.

M267 Pathway to Quantify the Effects of Peripheral Soft-Tissue and Capsule on Knee Joint Response

T. F. Bonner, J. P. Halloran, A. Erdemir, R. W. Colbrunn; Cleveland Clinic, OH.

M268 Are differences between marmosets and humans in average power output during the push-off in jumping reflected in muscle contractile properties determined in vitro?

R. L. C. Plas¹, H. Degens², I. H. C. H. Philippens³, M. F. Bobbert¹, R. T. Jaspers¹; ¹VU University Amsterdam, NETHERLANDS, ²Manchester Metropolitan University, UNITED KINGDOM, ³Biomedical Primate Research Centre, Rijswijk, NETHERLANDS.

M269 Reliability of the Initial and Final Root Mean Square and Spectral Median Frequency from Surface Electromyogram of the Erector Spinae Muscle

R. G. T. Mello, L. F. Oliveira, J. Nadal; Federal University of Rio de Janeiro, BRAZIL.

MISCELLANEOUS BIOMECHANICS

M270 Uncertainty Quantification of Boundary Conditions for the CFD Simulation of a Rabbit Aorta

N. Ashton; University of Manchester, UNITED KINGDOM.

M271 A Robotic Neuromusculoskeletal Simulator for Spine Research

R. Colbrunn¹, T. Bonner¹, P. Mageswaran², R. McLain¹, L. Gilbertson³; ¹Cleveland Clinic, OH, ²Ohio State University, Columbus, OH, ³Tulane University, New Orleans, LA.

M272 Women with Urinary Incontinence Demonstrate Altered Postural Stability

J. L. McCrory, C. Mancinelli, K. D. Harrison, S. Rondini, K. L. Thomas; West Virginia University, Morgantown, WV.

M273 A coupled human model of the circulation and the left ventricle

W. Chen¹, H. Gao¹, B. E. Griffith², X. Luo¹, N. A. Hill¹; ¹University of Glasgow, UNITED KINGDOM, ²New York University, NY.

M274 Ankle Joint Biomechanics During First Step of Stair Ascent is Different from Later Steps

T. Standifird, M. Arwood, S. Zhang;
University of Tennessee Knoxville, Knoxville, TN.

M275 Accurate Static and Dynamic Calibration Method of an Instrumented Treadmill

H. Lu¹, H. Hsieh², H. Lin³, T. Chen¹, T. Lu¹;
¹National Taiwan University, Taipei, TAIWAN, ²Department of Mechanical and Automation Engineering, Kao-Yuan University, Kaohsiung, TAIWAN, ³School of Physical Therapy, China Medical University, Taichung, TAIWAN.

M276 1D Modelling of Blood Flow in the Human Vascular Network

S. Safaei, V. Suresh, C. Bradley;
University of Auckland, NEW ZEALAND.

M277 Accounting for Scaling of Posture and Stance Parameters with Size and Speed

J. Usherwood, T. Hubel;
The Royal Veterinary College, Hatfield, UNITED KINGDOM.

M278 Achieving Accurate Finite Element Models of Thin Cortical Structures: A New Toolbox of Methodologies Validated in the Craniofacial Skeleton

A. Pakdel, J. Fialkov, C. Whyne;
University of Toronto, Toronto, ON, CANADA.

M279 Scaling of Human Lung Anatomy based on Anthropometric and Demographic Data

C. Carneal¹, Y. Otake², D. Kleissas¹, A. Merkle¹, M. Armand¹, M. Uy¹, G. Thawait³, J. Carrino³, B. Corner⁴, M. Carboni⁴, B. DeCristofano⁴, M. Maffeo⁴;
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M280 The evaluation of bone remodeling around two types of acetabular cups

Y. Wang¹, M. Hobatho², T. Guo¹;
¹Harbin Institute of Technology Shenzhen Graduate School, shenzhen, CHINA, ²UTC, Compiègne, FRANCE.

M281 Assessing spatiotemporal gait parameters based on vertical ground reaction force measurements

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M282 A Finite Element Modelling Approach to Predict Clinically Relevant Hip Fractures

M. I. Z. RIDZWAN, B. PAL, U. N. HANSEN;
Imperial College London, UNITED KINGDOM.

M283 Adaptation of Exoskeleton-Assisted Walking for Non Ambulatory Spinal Cord Injury: Preliminary Results

E. M. Johnsen, A. Ramanujam, E. Garbarini, R. Lamb, G. Forrest;
Kessler Foundation, West Orange, NJ.

M284 Lower limb muscle activity and trunk stability while wearing unstable shoes.

A. C. Clansey¹, M. L. Lake²;
¹Queens University, Kingston, ON, CANADA, ²Liverpool John Moores University, UNITED KINGDOM.

M285 Mechanochemistry of Bone Marrow: Characterizing the Mesenchymal Stem Cell Niche

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¹MIT, Cambridge, MA, ²SMART BioSystems & Micromechanics, SINGAPORE.

OCULAR & EYE BIOMECHANICS

M286 A method for estimating the mechanical state of the individual human eye on the basis of standard static measurement procedures

A. A. Stein, I. N. Moiseeva, G. A. Lyubimov;
Institute of Mechanics, Moscow State University, RUSSIAN FEDERATION.

M287 3D reconstruction and finite element analysis of cat optic nerve head based on in vivo experiment

X. Qian, K. Zhang, Q. Zhao, J. Luo, Z. Liu;
Capital Medical University, Beijing, CHINA.

ORTHOPAEDIC BIOMECHANICS

M288 Transfer Effects of a Treadmill Gait Training Program Using Learner's Focus of Attention Instructions in Controlling Knee Hyperextension Pattern in Young Women

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M289 Typical pattern of pelvic insufficiency fractures reproduced by a finite element model

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M290 Effect of microseparation on contact mechanics in metal-on-metal hip joints: Finite element analysis

F. Liu, S. Williams, J. Fisher;
Institute of Medical and Biological Engineering, School of Mechanical Engineering, University of Leeds, UNITED KINGDOM.

M291 A Novel Methodology for Determining Subject Specific Ligament Properties in the TKA Knee.

J. Ewing¹, M. Cullen¹, E. Hutter¹, J. Granger², M. Beal³, R. Siston¹;
¹The Ohio State University, Columbus, OH, ²Department of Orthopedic Surgery, The Ohio State University, Columbus, OH, ³Department of Orthopedic Surgery, Northwestern University, Evanston, IL.

M292 A simple analytical tool to optimise locking plate configuration

A. R. MacLeod, P. Pankaj;
University of Edinburgh, UNITED KINGDOM.

M293 A Novel Approach for Determining Bone Mass and Its Relationship to Ambulatory Level in Children With Spina Bifida

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M294 An Accurate and Repeatable Method to Study Knee 3D Pseudo-Kinematics Using Low-Dose Stereo-Radiography

M. K. Kanhonou¹, T. Cresson¹, J. Clément¹, F. Lavoie², N. Hagemeister¹, J. A. de Guise¹;
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M295 A Biomechanical Analysis of Stair Ascent using a Combined Custom-Fit Valgus Knee Brace and Custom-Made Lateral Wedge Foot Orthotic

R. Moyer, T. Birmingham, K. Marriott, K. Leitch, J. R. Giffin;
Western University, London, ON, CANADA.

M296 A retrospective analysis of peak plantar shear and diabetic ulceration sites

M. Yavuz¹, S. A. Richards², K. Garfield², S. T. Gray², A. E. Jensen², N. Rao², N. Delvadia², R. W. Brem¹;
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M297 Biomechanical Adaptations to Ankle-Foot Orthosis Stiffness during Walking in Patients with Lower Limb Trauma

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M298 Barbed suture material for flexor tendon repair: a biomechanical comparison ex vivo.

M. C. Jordan, R. H. Meffert, S. Doht;
Julius-Maximilians University, Würzburg, GERMANY.

M299 A New Multi-joint Kinetic Profile of Foot Function in People with Diabetes and Peripheral Neuropathy: A Pilot Study

F. E. DiLiberto¹, J. Tome², J. F. Baumhauer¹, D. A. Nawoczinski²;
¹University of Rochester, NY, ²Ithaca College - Movement Analysis Laboratory, Rochester, NY.

M300 Accuracy of Quantifying Seated Spinal Curvature Using Fiber Optic Technology versus Optoelectronic Markers

B. A. Cloud, K. D. Zhao, R. Breighner, H. Giambini, K. An;
Mayo Clinic, Rochester, MN.

M301 Biomechanical evaluation of a newly developed flexible PCL brace with regard to the effectiveness

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M302 Assessment of stiffness of proximal femoral fractures fixed by DHS and PFN fixation systems - FE analyses for clinical practice

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M303 A Method for Validation of Finite Element Models in Scoliosis Bracing Simulation

C. Vergari¹, G. Ribes¹, B. Aubert¹, C. Adam¹, L. Miladi², B. Ilharberborde³, K. Abelin-Genevois⁴, P. Rouch¹, W. Skalli¹;
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M304 Do Biomechanical Exam Variables Predict Response to Conservative Treatment of Non-Chronic Plantar Fasciitis?

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M305 A Bandwidth Limitation in Joint Motion Simulator Control

P. J. Schimoler¹, J. S. Viperman¹, M. C. Miller²;
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M306 Effects of ligature pretension in interspinous process spacer on stability and spinous process fracture risk

D. Choi, K. Kim, W. Park, Y. Kim;
Kyung Hee University, Yongin-si, REPUBLIC OF KOREA.

M307 Application of computational lower extremity model to investigate muscle activities and joint force patterns in knee osteoarthritis patients during walking

A. Dorj, K. Kim, Y. Kim;
Kyung Hee University, Yongin, REPUBLIC OF KOREA.

M308 Altered Biomechanics of a Perthes' Hip Investigated by Contact Modeling

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M309 Caliper Method vs Digital Photogrammetry for Assessing Arch Height Index in Pregnant Women

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M310 The Effect of Different Thumb Orthoses on Thumb Stabilization and Hand Function in Individuals with Carpometacarpal Osteoarthritis

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M311 Loading rate during gait and stair descent for individuals with focal cartilage defects in the knee

L. M. Thoma, M. P. McNally, D. C. Flanigan, A. M. Chaudhari, R. A. Siston, T. M. Best, L. C. Schmitt;
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M312 Altered Landing Mechanics in Professional Athletes with Patellofemoral Pain

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¹Imperial College London, UNITED KINGDOM, ²Northumbria University, Newcastle, UNITED KINGDOM, ³Cardiff University, UNITED KINGDOM.

M313 Understanding Knee Functionality: Simultaneous Assessment of Whole Body Kinematics, Videofluoroscopic Tibiofemoral Implant Kinematics, EMG and Ground Reaction Forces during Daily Activities

P. Schütz, H. Gerber, M. Hitz, S. Ferguson, W. R. Taylor, R. List;
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M314 The Effect of Bone Preparation on Cementless Femoral Component Micromotion in Total Knee Arthroplasty

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M315 A Comparison of Upper Extremity Joint Demands during Pediatric Lofstrand Crutch and Walker-Assisted Gait

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M316 A Method for Assessing Accuracy in Tracking Foot Bones with Biplanar Videoradiography

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¹Harvard Medical School, Cambridge, MA, ²Rhode Island Hospital, Providence, RI, ³Rhode Island Hospital / Brown University, Providence, RI.

M317 A Preliminary Evaluation of Shoulder Mechanics Using a Novel Wheelchair: The Influence of Pain

P. W. Hovis, M. D. Brown, C. J. Hass, M. D. Tillman;
University of Florida, Gainesville, FL.

M318 Nanoindentation Modulus and Mineral Volume Fraction Relationships in the Human Vertebral Endplate

R. C. Paietta¹, E. F. Morgan², V. L. Ferguson¹;
¹Univ of Colorado, Boulder, CO, ²Boston University, MA.

SPECIAL TOPICS – GAIT, MOTION, PROSTHETICS, & INJURY

M319 Does the GRF Pass through the COM during Gait?

A. Schmitz, J. Norberg, B. Noehren;
University of Kentucky, Lexington, KY.

M320 Treadmill Walking is Problematic for the Study of Gait Smoothness in Older Adults

T. J. Kataras, M. M. Ruwitch, B. Row Lazzarini;
Willamette University, Salem, OR.

M321 A Novel Technique Quantifying Phalangeal Cylinder Reaction Forces During Gripping

E. W. Sinsel¹, D. L. Gloekler², B. M. Wimer¹, C. M. Warren¹, J. Z. Wu¹, F. L. Buczek¹;
¹National Institute for Occupational Safety and Health, Morgantown, WV, ²Georgetown University School of Medicine, Washington, DC.

M322 A Comparison of Gait Parameters between Patients with Peripheral Arterial Disease and Patients with Chronic Obstructive Pulmonary Disease.

E. J. Pisciotta¹, S. R. Wurdeman², J. M. Yentes¹, I. I. Pipinos³, J. M. Johanning¹, S. A. Myers¹;
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M323 A Review of Passive and Powered Leg Prostheses for Walking

J. R. Jeffers, A. Grabowski;
University of Colorado at Boulder, CO.

M324 Age-gender comparison of acceleration attenuation at the upper body during walking

H. Jeon, Y. Ho, Y. Kwon, J. Kim, G. Eom;
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M325 A Comprehensive Data Set for Testing Muscle Forces Predicted by Subject-Specific Musculoskeletal Simulations

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M326 Arm Swing, Thorax-Pelvis Coordination and Angular Momentum Regulation During Walking

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¹St. Ambrose University, Davenport, IA, ²University of Massachusetts Amherst, MA.

M327 Alterations in the Tridimensional Scapular Kinematics in Women with Fibromyalgia.

M. A. Avila, P. R. Camargo, T. F. Salvini;
Federal University of Sao Carlos, BRAZIL.

M328 A Comprehensive, Cross-Sectional Investigation of Postural Sway as an Assessment of Fall Risk for Older Adult Women

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M329 Amputee Step Activity is Correlated to Stride-to-Stride Fluctuations at the Ankle.

J. Renz, W. Korgan, S. A. Myers, N. Stergiou, S. R. Wurdeman;
University of Nebraska at Omaha, NE.

M330 Subject Influence on the Error Prediction of Hand Grasping Postures with Artificial Neural Networks

M. C. Mora, J. Andrés, J. L. Sancho-Brú;
University Jaume I, Castellón, SPAIN.

M331 Comparison of Gait Score Methodologies in Assessing Amputee Rehabilitation Progress

T. Kingsbury¹, M. Marks², N. Thesing¹, M. Wyatt¹;
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M332 A unified modelling of oriented movement in plants

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¹SEAS Harvard, Cambridge, MA, ²MSC, Paris, FRANCE, ³PIAF INRA, Clermont Ferrand, FRANCE.

M333 Integration of Flexible and Thin Sensor System of Contact Pressure and Shear-stress for Application to Haptic Display

S. Sato, K. Sasagawa;
Hirosaki University, JAPAN.

M334 An Exploratory Analysis of the Effect of Fatigue on Wrist Variability Utilizing Different Propulsion Styles

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¹University of Florida, Gainesville, FL, ²Troy University, AL.

M335 Biomechanics Research for the Warrior Injury Assessment Manikin Project: Human Biofidelity Response and Injury Prediction for Under-Body Blast

A. Merkle¹, L. Voo¹, J. Zhang¹, M. Kleinberger¹, F. Pintar², N. Yoganandan², C. Bass³, R. Salzar⁴, J. Rupp⁵, J. Stitzel⁶, J. Bolte⁷, J. Cavanaugh⁸, C. Bir⁸, K. Ott¹, R. Coates⁹;

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SPECIAL TOPICS – BIOFLUID MECHANICS

M336 A Doppler Spectrum Model for Improved Ultrasound Assessment of Maximum Velocity in Blood Flow

S. Ricci, R. Matera;
University of Florence, Firenze, ITALY.

M337 3D Printed Model of the Cervical Spine for Simulation of Cerebrospinal Fluid Motion: Comparison of In Vitro and Computational Fluid Dynamics Simulation Results

S. THYAGARAJ¹, S. Heidari Pahlavian¹, M. Vatani¹, J. Choi¹, M. Goodin², A. Bunck³, T. Yiallourou⁴, F. Loth¹, B. Andrew Martin⁴;

¹The University of Akron, OH, ²Simutech Group, Hudson, OH, ³University of Munster, GERMANY, ⁴Swiss Federal Institute of Technology, Lausanne, SWITZERLAND.

M338 An Investigation into the Flow Behaviour of Breast Cancer Cells within the Lymphatic System using both Numerical and Microfluidic Experimental Methods.

S. T. Morley, D. Newport, M. T. Walsh;
University of Limerick, IRELAND.

SPECIAL TOPICS – SOFT TISSUE BIOMECHANICS

M339 Dynamic instrumented palpation for ex vivo and in vivo assessment of the prostate

S. J. Hammer¹, D. W. Good², P. Scanlan¹, W. Shu¹, R. L. Reuben¹, S. Phipps², G. D. Stewart³, A. S. McNeill²;

¹Heriot-Watt University, Edinburgh, UNITED KINGDOM, ²Western General Hospital, Edinburgh, UNITED KINGDOM, ³University of Edinburgh, UNITED KINGDOM.

M343 Anisotropic behaviour of human gallbladder walls

X. Luo¹, W. G. Li¹, N. A. Hill¹, R. W. Ogden¹, A. Smith², A. W. Majeed², N. Bird²;

¹University of Glasgow, UNITED KINGDOM, ²University of Sheffield, UNITED KINGDOM.

M344 Tumor characterization in mice using magnetic resonance elastography

Y. Feng¹, E. H. Clayton², R. J. Okamoto², J. Engelbach², J. R. Garbow², P. V. Bayly²;

¹University of Texas at Austin, TX, ²Washington University in St. Louis, MO.

M321 Median Nerve Circularity Increases during Medial-Lateral Compression of the Wrist

T. L. Marquardt, J. N. Gabra, Z. Li;
Cleveland Clinic, OH.

M332 Study on the Suture Line Response of Arterial End-to-side Anastomosis

P. C. Roussis¹, A. E. Giannakopoulos², H. P. Charalambous¹;

¹University of Cyprus, Nicosia, CYPRUS, ²University of Thessaly, Volos, GREECE.

M333 Analytical Investigation of the Influence of Elastic Mismatch on the Response of End-to-side and Side-to-side Arterial Anastomosis

P. C. Roussis¹, A. E. Giannakopoulos², H. P. Charalambous¹;

¹University of Cyprus, Nicosia, CYPRUS, ²University of Thessaly, Volos, GREECE.

REHABILITATION

M345 Adaptation and Prosthesis Effects on Stride-to-Stride Fluctuations

S. R. Wurdeman¹, S. A. Myers¹, A. L. Jacobsen², N. Stergiou¹;

¹University of Nebraska at Omaha, NE, ²Veterans Affairs Medical Center, Omaha, NE.

M346 A user-controlled powered ankle exoskeleton to drive gait modifications post-stroke

K. Z. Takahashi¹, M. D. Lewek², G. S. Sawicki¹;

¹North Carolina State University, Raleigh, NC, ²University of North Carolina at Chapel Hill, Chapel Hill, NC.

M347 Can the Kinect Measure In Vivo Joint Angles as well as a Marker-Based System?

A. Schmitz, M. Ye, R. Shapiro, R. Yang, B. Noehren;
University of Kentucky, Lexington, KY.

M348 A Novel Rehabilitation Robotic Platform for Over-ground Gait Training

K. Mun, H. Yu;
National University of Singapore, SINGAPORE.

M349 A Portable Knee Ankle Foot Robot for Stroke Rehabilitation

G. Chen, Z. Guo, H. Yu;
National University of Singapore, SINGAPORE.

M350 Virtual Reality Based Feedback Methods to Improve Efficiency of Service Members with Amputation

E. M. Nottingham, A. L. Pruziner, E. J. Wolf;
Walter Reed National Military Medical Center, Bethesda, MD.

M351 Lower Extremity Sensory Impairment Influences Static and Dynamic Balance in People Post Stroke and People With Peripheral Neuropathy

C. Wutzke, V. Mercer;
University of North Carolina at Chapel Hill, NC.

M352 Quadriceps Strengthening Does Not Change Quadriceps and Knee Biomechanics During Stair Ascent and Descent in Adults With Knee Osteoarthritis

P. DeVita¹, J. Leonardis¹, M. Henriksen², C. Bartholdy², P. Rider¹, L. Jørgensen², H. Bliddal², S. Rabideau¹, J. Aaboe²;
¹East Carolina University, Greenville, NC, ²The Parker Institute, Copenhagen, DENMARK.

M353 A Solid-State Smart-Material Based Prosthetic Arm

M. A. Levenstein, B. Ketterer, M. Guzman, T. Teates, D. Park, S. Vasquez, P. Jelenek, G. Clark, B. Lefebvre, C. Karaoz, J. Gongloff, M. Pollard, O. Bilgen;
Old Dominion University, Norfolk, VA.

M354 Evaluation of a Powered Ankle-Foot Prosthetic System during Inclined Walking

C. A. Rabago, J. M. Whitehead, A. E. Ferris, J. M. Wilken;
Brooke Army Medical Center, JBSA Fort Sam Houston, TX.

M355 Virtual Reality Based Training of Service Members with Unilateral Transtibial Amputation

E. J. Wolf¹, A. L. Pruziner¹, K. M. Werner², E. M. Nottingham², C. R. Scoville²;
¹DoD-VA Extremity Trauma and Amputation Center of Excellence, Bethesda, MD, ²Walter Reed National Military Medical Center, Bethesda, MD.

M356 A perturbation rejection controller for seated balance after spinal cord injury

M. L. Audu, L. Marinis, R. J. Triolo;
Case Western Reserve University, Cleveland, OH.

M357 Ankle function and biomechanical improvements after a combined strengthening, stretching and functional training program for diabetic neuropathic patients: a randomized controlled trial

C. D. Sartor, R. Watari, L. P. Cacciari, M. K. Butugan, R. H. Hasue, I. C. N. Sacco;
University of Sao Paulo, BRAZIL.

M358 Trunk-Pelvis Motion and Lumbar Loads during Walking in Individuals with Transtibial Amputation

A. J. Yoder, A. K. Silverman, A. J. Petrella;
Colorado School of Mines, Golden, CO.

M359 Amount of step width variability is increased in patients with peripheral arterial disease.

B. Arnold¹, S. R. Wurdeman¹, J. M. Yentes¹, J. M. Johanning², I. I. Pipinos², S. A. Myers¹;
¹University of Nebraska at Omaha, NE, ²Omaha Veterans' Affairs Medical Center; University of Nebraska Medical Center, Omaha, NE.

M360 IMU Data Based Reconstruction of Limb Movement Trajectory through Spectral and EMD Analysis

J. Huang, M. Pan;
National Central University, Jhongli, TAIWAN.

M361 Training Effect of Wheelchair Dance on Aerobic Fitness in Bedridden Individuals with Severe Cerebral Palsy

K. Terada¹, A. Satonaka², Y. Terada³, N. Suzuki⁴;
¹Nagoya College, Aichi, JAPAN, ²Graduate School of Medicine, Nagoya University, JAPAN, ³Nagoya Keizai University, Aichi, JAPAN, ⁴Institute for Developmental Research, Aichi Human Service Center, JAPAN.

M362 Antagonistic co-contraction at the wrist in patients with Parkinson's disease

Y. Kwon, J. Kim, Y. Ho, H. Jeon, G. Eom;
Konkuk University, Choogju, REPUBLIC OF KOREA.

M363 Altered single leg squatting control in people with Anterior Cruciate Ligament injury compared to healthy controls.

R. van Deursen, K. Button, P. Roos;
Cardiff University, UNITED KINGDOM.

M364 Analysis of muscle activities and joint motion of the shoulder and the elbow during wheelchair propulsion

J. John, G. Arnold, R. Abboud, W. Wang;
Dundee University, UNITED KINGDOM.

M365 A New System for Rehabilitation of Lower Limbs Based on Inertial Sensors and Feedbacks: A Validation Study by Gait Analysis

G. Lullini, L. Berti, A. Leardini;
Istituto Ortopedico Rizzoli, Bologna, ITALY.

M366 A User-Modulated Control Strategy for Sit-to-Stand Transitions Using a Powered Knee-Ankle Prosthesis

A. M. Simon, N. P. Fey, K. A. Ingraham, S. B. Finucane, E. G. Halsne, L. J. Hargrove;
Rehabilitation Institute of Chicago, IL.

M367 A Step Towards Reducing Freezing of Gait in Parkinson's Disease: Using a Portable Powered Orthosis

M. N. Petrucci¹, C. D. MacKinnon², E. T. Hsiao-Wecksler¹;
¹University of Illinois Urbana-Champaign, IL, ²University of Minnesota, Minneapolis, MN.

M368 Arm Movement Analysis via Marker Tracking with a Single-Camera System: Validation with a Motion Analysis System in Stroke and Healthy Subjects

C. Yang¹, A. Kerr², V. Stankovic¹, L. Stankovic¹, P. Rowe²;
¹Department of Electronic and Electrical Engineering, University of Strathclyde, Glasgow, UNITED KINGDOM, ²Department of Biomedical Engineering, University of Strathclyde, Glasgow, UNITED KINGDOM.

M369 Arch Height Mediation of Obesity-related Walking in Adults

S. V. Gill, J. M. DeSilva;
Boston University, MA.

M370 Acute Effects of Cadence Manipulation on Knee Loading During Gait Following ACL Reconstruction

P. E. Lin, K. A. Pratt, M. R. Pucciarelli, S. M. Sigward;
University of Southern California, Los Angeles, CA.

M371 Analyzing Control of Lateral Weight Shifting after Neurotrauma with an Inverted Pendulum Model

M. W. Kennedy, J. P. Schmiedeler;
University of Notre Dame, South Bend, IN.

M372 Aspects regarding the correlation between the biomechanical model of the elbow and the rehabilitation orthosis with two freedom degrees

C. Oprisan, E. Budescu, P. Paraschiv;
Technical University of Iasi, ROMANIA.

M373 Ankle Range of Motion and Ankle Power: Key Contributors to Gait Efficiency in Children with Cerebral Palsy.

A. Pouliot-Laforte¹, A. Parent², P. Marois³, C. Forsythe⁴, M. Lemay¹, L. Ballaz¹;
¹Université du Québec à Montréal, QC, CANADA, ²École Polytechnique, Montreal, QC, CANADA, ³Sainte-Justine UHC, Montreal, QC, CANADA, ⁴Québec UHC, QC, CANADA.

M374 Age-related changes in reflex kinematics to electrical stimulation to the dorsum of the foot during walking.

S. R. Hundza, R. Brodie, D. Commandeur, A. Gaur, M. Klimstra;
University of Victoria, BC, CANADA.

RESPIRATORY & LUNG BIOMECHANICS

M375 An Efficient Computational Model for Simulating Gas Exchange in the Lung

W. Kang, A. Clark, M. Tawhai;
Auckland Bioengineering Institute, NEW ZEALAND.

M376 The comparison of flow patterns in OSA upper airways between successful and failed surgeries

M. Lu¹, Y. Liu¹, J. Ye²;
¹The Hong Kong Polytechnic University, Kowloon, HONG KONG, ²Capital Medical University, Beijing, CHINA.

M377 A Model of Lung Parenchyma Stress Relaxation Using Fractional Viscoelasticity

Z. Dai¹, Y. Peng¹, H. A. Mansy², R. H. Sandler³, T. J. Royston¹;
¹University of Illinois at Chicago, IL, ²University of Central Florida, Rush University Medical Center, Orlando, FL, ³University of Central Florida, Nemours Children's Hospital, Orlando, FL.

RHEOLOGY & ELASTICITY

M378 A Non-Linear Model to Evaluate Cells' Poisson's Ratio and Young's Modulus in Microindentation Experiments

L. Guillou, D. Gonzalez-Rodriguez, J. Lafaurie-Janvove, A. Babataheri, E. De Langre, A. Barakat, J. Husson;
Ecole Polytechnique, Palaiseau, FRANCE.

M379 Development of Simplified Rheological and Physiological Blood Analogue Solutions

J. Calejo¹, R. Rodrigues¹, T. Yaginuma¹, F. Galindo-Rosales², L. Campo-Deaño², R. Lima³;
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SPINE BIOMECHANICS

M380 Age Effects On Spine Motion During Ambulatory Activities

S. P. Breloff¹, L. Chou²;
¹University of Scranton, Scranton., PA, ²University of Oregon, Eugene, OR.

M381 Accumulation of Advanced Glycation End-products in the Intervertebral Discs of Type 2 Diabetic Rodents Increases Susceptibility to Mechanical Damage

A. C. Abraham¹, R. Fuchs², D. Burr², S. Y. Tang¹;
¹Washington University in St. Louis, MO, ²Indiana University, Indianapolis, IN.

M382 A Biomechanical Analysis of Growing Rods Used in the Management of Early Onset Scoliosis (EOS).

M. E. Quick, C. J. Adam, G. N. Askin, R. D. Labrom, M. J. Pearcy;
QUT/Mater Paediatric Spine Research Group, Institute of Health and Biomedical Innovation, Queensland University of Technology and Mater Health Services, Brisbane, AUSTRALIA.

M383 A Physically-based Haptics Simulator for Spine Surgery Simulation

Q. Xing¹, J. Li², A. Moshirfar³, J. Chen¹, M. Theiss⁴, Q. Wei⁵;

¹Department of Computer Science, George Mason University, Fairfax, VA, ²Department of Orthopedics, Inova Fairfax Hospital, Annandale, VA, ³Department of Orthopaedic Surgery, Inova Loudoun Hospital, Leesburg, VA, ⁴Department of Orthopaedic Surgery, Falls Church, VA, ⁵Department of Bioengineering, George Mason University, Fairfax, VA.

M384 Composition-Based Tissue Modelling to Assess the Sensitivity of Cell Nutritive Environment To Extracellular Matrix Changes within the Intervertebral Disc

C. Ruiz Wills¹, A. Malandrino¹, D. Lacroix², K. Ito³, J. Noailly¹;
¹Biomechanics and Mechanobiology - Institute for Bioengineering of Catalonia (IBEC), Barcelona, SPAIN, ²INSIGNEO Institute for in silico Medicine - University of Sheffield, UNITED KINGDOM, ³Orthopaedic Biomechanics - Eindhoven University of Technology, NETHERLANDS.

M385 Cervical Muscle Length Changes in Forward Head Posture

S. Khayatadeh¹, D. Schuit², W. Sears³, R. M. Havey¹, M. G. Muriuki¹, L. I. Voronov¹, A. J. Ghanayem¹, A. G. Patwardhan¹;
¹Edward Hines Jr. VA Hospital, Hines, IL, ²Governors State University, University Park, IL, ³Wentworth Spine Clinic, Sydney, AUSTRALIA.

M386 Active Muscle Modeling In Combination With Intervertebral Disc Swelling In A L3-S1 Lumbar Spine Model Captures The Importance Of Night Rest

T. Tomanidou, J. Noailly;
Institute for Bioengineering of Catalonia, Biomechanics and Mechanobiology, Barcelona, SPAIN.

M387 An Evaluation of the Distribution and Architecture of Trabecular Bone Displaced during Kyphoplasty

P. Purcell¹, F. Mc Evoy¹, S. Tiernan¹, S. Morris²;
¹TT Dublin, IRELAND, ²National Spinal Injuries Unit, Mater Misericordiae University Hospital, Dublin, IRELAND.

M388 A Stepwise Multiple Regression Analysis of Pedicle Screws in the Thoracolumbar Spine

K. M. Albanese, N. Ordway, W. Lavelle, S. Albanese;
SUNY Upstate Medical University, Syracuse, NY.

M389 3D analysis of the canal microstructure in a rabbit lumbar vertebral endplate

Y. Nishigaki¹, T. Yamaguchi¹, M. Kishimoto¹, S. Goto¹, N. Inoue²;
¹Doshisha University, Kyoto, JAPAN, ²Rush University Medical Center, Chicago, IL.

SPORTS BIOMECHANICS & HUMAN PERFORMANCE

M390 Adaptability of Stride-to-Stride Control in Human Walking and Running

N. K. Bohnsack¹, J. P. Cusumano², J. B. Dingwell¹;
¹University of Texas, Austin, TX, ²Penn State University, University Park, PA.

M391 TURNING KINETICS DURING INTENSE WHEELCHAIR PROPULSION

L. Wang¹, Y. Lin², S. Hwang², A. Koontz³;
¹Institute of Physical Education, Health & Leisure Studies, National Cheng Kung University, Tainan, TAIWAN, ²Human Engineering Research Laboratories, Department of Veterans Affairs Pittsburgh Healthcare System, Pittsburgh. Departments of Rehabilitation Science and Technology, University of Pittsburgh, PA, ³Human Engineering Research Laboratories, Department of Veterans Affairs Pittsburgh Healthcare System, Pittsburgh. Departments of Bioengineering, and Rehabilitation Science and Technology, University of Pittsburgh, PA.

M392 Relationships between Trunk Accelerations and Trunk and Lower Limb Positions during Shuttle Run Cutting

Y. Nagano¹, A. Higashihara², S. Sasaki³, H. Ishii⁴;
¹Niigata University of Health and Welfare, JAPAN, ²The Japan Society for the Promotion of Science, Tokyo, JAPAN, ³Tokyo Ariake University of Medical and Health Sciences, JAPAN, ⁴Rikkyo University, Saitama, JAPAN.

M393 Ultrasonographic and Kinematic Analysis of Ulnar Nerve at The Elbow in Baseball Pitchers

K. C. Lo¹, H. C. Chang², L. C. Kuo³, I. M. Jou⁴, F. C. Su², L. H. Wang⁵;
¹Physical Education Office, Kun Shan University, Tainan, TAIWAN, ²Department of Biomedical Engineering, National Cheng Kung University, Tainan, TAIWAN, ³Institute of Occupational Therapy, National Cheng Kung University, Tainan, TAIWAN, ⁴Department of Orthopedics, National Cheng Kung University, Tainan, TAIWAN, ⁵Institute of Physical Education, Health & Leisure Studies, National Cheng Kung University, Tainan, TAIWAN.

M394 A Comparison of 2D and 3D Hip and Knee Torques in Conventional Squat Exercises

B. Meyer;
Shippensburg University, PA.

M395 Trunk And Lower Limb Kinematics And Muscle Activation Pre And Post Eccentric Hip Extensor Fatigue

T. H. Nakagawa, R. S. Silva, A. F. Santos, G. C. Lessi, J. E. Cunha, F. V. Serrão;
Federal University of São Carlos, São Paulo, BRAZIL.

M396 A Novel Approach for Predicting In-Vivo Lumbar Spine Loads and Kinematics Based on Motion Analysis

M. Eltoukhy, M. Ziff, S. Elmasry, F. Travascio, S. Asfour;
University of Miami, Coral Gables, FL.

M397 An Assessment of the Effect of the New Rugby Union Engagement Laws on the Spinal Kinematics of the Hooker

R. Swaminathan¹, M. D. Jones¹, J. M. Williams², P. S. Theobald¹;
¹Cardiff University, UNITED KINGDOM, ²Bournemouth University, UNITED KINGDOM.

M398 A Comparison of Older and Younger Distance Runners Over 400 miles of Shoe Wear

H. A. Orloff, M. Thompson, J. Higa;
University of Puget Sound, Tacoma, WA.

M399 Joint angles, moments and muscle activities in Nordic walking in comparison with walking

N. Yamamoto¹, H. Yanagi², T. Wada³;
¹Japanese Red Cross College of Nursing, Kitami, JAPAN, ²Kitami Institute of Technology, Kitami, JAPAN, ³Kokushikan University, Tokyo, JAPAN.

M400 Kinematic analysis magnitude of acceleration for braking and propulsion phases during foot contact phase at maximal speed sprinting

Z. Sha, K. Sato;
East Tennessee State University, Johnson City, TN.

M401 Balance control and response to perturbations in various dance positions: a balance study in dance using a moving platform

E. Huh, M. T. G. Pain;
Loughborough University, UNITED KINGDOM.

M402 Patellofemoral Joint Stress of Female Ballet Dancers with and without Patellofemoral Pain during Consecutive Jumping and Landing

K. KIM¹, H. Peng¹, W. Chen², T. Kernozek³, C. Song⁴;
¹Department of Physical Education, Chinese Culture University, Taipei, TAIWAN, ²Department of Dance, Chinese Culture University, Taipei, TAIWAN, ³Physical Therapy Program, Department of Health Professions, University of Wisconsin-La Crosse, WI, ⁴School and Graduate Institute of Physical Therapy, College of Medicine, National Taiwan University, Taipei, TAIWAN.

M403 An Investigation of Power-assisted Sit-to-stand Movement: It is Timing That Matters

H. Dong¹, K. Matsushita², T. Yamamoto³, H. Ishiguro¹;
¹Osaka University, Toyonaka, JAPAN, ²Osaka University, Suita, JAPAN, ³NICT;Osaka University, Suita, JAPAN.

M404 Relationship Between Isokinetics Strength of Elbow and Throwing Performance in Handball

C. Yu¹, C. Chen², J. Lin¹, Y. Chen²;
¹Chinese Culture University, Taipei, TAIWAN, ²National Taiwan University of Physical Education and Sport, Taichung, TAIWAN.

M405 A Novel Approach to Map the Center of Pressure Measured by Insole Pressure Sensor Technology onto the Shoe Coordinate System

B. T. Weaver, J. E. Braman, R. C. Haut;
Michigan State University, East Lansing, MI.

M406 Changes in Running Kinematics Following Bilateral Isolated Lower Extremity Joint Fatigue

D. Dickin, H. Wang, J. Estes, K. Weiss;
Ball State University, Muncie, IN.

M407 Alterations of In-Shoe Plantar Loading Patterns During Running at Different Simulated Gravity Levels on a Lower-Body Positive Pressure Treadmill

J. M. Smoliga, L. A. Wirfel, M. Doarnberger, K. R. Ford;
High Point University, High Point, NC.

M408 The analysis of defense against clinch holds of wrestling on plantar pressure

C. Chiou¹, T. Su¹, C. Pi², C. Chen³;
¹National Changhua University of Education, changhua, TAIWAN, ²Taiwan Police College, Taipei, TAIWAN, ³National Taiwan University of Physical Education and Sport, Taichung, TAIWAN.

M409 Influence of Compression Apparel on Hip Joint Mechanics, Soft-Tissue Vibrations, and Muscle Activations during Drop Jumps

W. Fu, Y. Liu, R. Xia, L. Huang;
Key Laboratory of Exercise and Health Sciences of Ministry of Education, Shanghai University of Sport, Shanghai, CHINA.

M410 Sprint mechanics of able-bodied and amputee sprinters in men's 100-m sprint

H. Hobara, Y. Kobayashi, M. Mochimaru;
National Institute of Advanced Industrial Science & Technology, Tokyo, JAPAN.

M411 The Electromyography Analysis of Riding the Innovative Stepping

H. T. PENG¹, Y. H. WANG¹, Z. R. CHEN¹, T. Y. HSU²;
¹Chinese Culture University, Taipei, TAIWAN, ²National Taichung University of Education, Taichung, TAIWAN.

M412 A 5% Shorter Stride Decreases Patellofemoral Loading as much as using a Mid/forefoot Strike

E. R. Boyer, T. R. Derrick;
Iowa State University, Ames, IA.

M413 A study on biomechanical behavior of the lumbar spine in relation to saddle height during cycling exercise

A. R. Kang, S. J. Lee;
Inje University, Gimhae, REPUBLIC OF KOREA.

M414 Trunk position and shank angle alter the biomechanics of the lead and support limb during the forward lunge exercise

C. Hofmann¹, D. Holyoak², P. Juris³;
¹Cybox Research Institute, Medway, MA, ²University of Connecticut, Storrs, CT, ³University of Massachusetts, Amherst, MA.

M415 1000 Norms Project: Clinical Catalogue of Lower Limb Biomechanical Variation

M. J. McKay, J. N. Baldwin, M. Simic, P. Ferreira, N. Vanicek, N. Moloney, C. Hiller, J. Nightingale, J. Burns, K. Refshauge;
The University of Sydney, AUSTRALIA.

M416 Effect of Core Stability Training on Jumping and Changing-Of-Direction Abilities in Female Basketball Players

S. Wang¹, L. Liaw¹, C. Yang², L. Guo¹;
¹Kaohsiung Medical University, TAIWAN, ²Tzu-Chi University, Hualien, TAIWAN.

M417 Correlation Between Functional Movement Screen Deep Squat Scores Using Raters from Different Movement Science Disciplines and 3D Kinematic Data

E. P. Scibek¹, S. L. Edmond², M. F. Moran¹;
¹Sacred Heart University, Fairfield, CT, ²Rutgers University, Newark, NJ.

M418 Subject-Specific Musculoskeletal Model To Estimate Muscle Contribution To The Acceleration Phase Of The Sprint

A. P. Veloso, S. Cabral, F. João, V. Moniz-Pereira;
Univ Lisboa, Fac Motricidade Humana, CIPER, LBMF, Lisboa, PORTUGAL.

M419 Acute static and unstable balance after a 3 mile running bout in varying shod conditions.

M. Bohne, N. Allphin;
Utah Valley University, Orem, UT.

TISSUE ENGINEERING

M420 Sterilisation Effects on the Biomechanical Properties of Acellular Porcine Super Flexor Tendons

A. Herbert, G. L. Jones, E. Ingham, J. Fisher;
University of Leeds, UNITED KINGDOM.

M421 A Structural and Computational Fluid Dynamics Analysis to Quantify the Variability of Rapid-Prototyping Scaffolds

A. M. Campos Marin, D. Lacroix;
INSIGNEO Institute for in silico medicine, Department of Mechanical Engineering, University of Sheffield, UNITED KINGDOM.

M422 3D Imaging and Analysis of Fibrillar Networks Within Collagen Hydrogels Using Focused Ion Beam Milling and Scanning Electron Microscopy

S. Reese, N. Farhang, R. Polson, J. Weiss;
University of Utah, Salt Lake City, UT.

M423 Development and Characterization of a Decellularised Xenogeneic Mitral Valve Scaffold

M. Granados, L. Morticelli, P. Yablonski, A. Hilfiker, I. Tudorache, S. Cebotari, A. Haverich, S. Korossis;
Department of Cardiothoracic, Transplantation and Vascular Surgery, Hannover Medical School, GERMANY.

M424 Application of Ionic Microenvironment Modulators to Improve the Biomechanical Properties of Engineered Cartilage

J. K. Lee, C. A. Gegg, J. C. Hu, P. H. Kass, K. A. Athanasiou;
University of California, Davis, CA.

M425

A Novel In Vitro Blood Brain Barrier Platform

C. Hovell¹, G. Barabino², Y. Kim¹, L. Taite¹;
¹Georgia Institute of Technology, Atlanta, GA, ²City College of New York, NY.

M426 Mechanotransduction events in bone marrow mesenchymal stem cells after fluid flow exposure

S. Rath, S. Van Gulden, S. Ramaswamy;
Florida International University, Miami, FL.

M427 A novel biomechanoreactor for dynamic conditioning and biomechanical characterization of tissue tubular structures.

N. Bono¹, M. Soncini¹, M. Ramella², M. Piola¹, F. Consolo¹, F. Boccafoschi², G. Fiore¹;

¹Politecnico di Milano, ITALY, ²Università del Piemonte Orientale "A. Avogadro", Novara, ITALY.

M428 A Novel Viscoelastic Collagen-Elastin Bilayered Tubular Scaffold for Vascular Graft Tissue Engineering.

A. J. Ryan, F. J. O'Brien;

Tissue Engineering Research Group, Royal College of Surgeons in Ireland; Trinity Centre for Bioengineering, Trinity College Dublin; Advanced Materials and Bioengineering Research Centre, TCD & RCSI, Dublin, IRELAND.

M429 3D microstructuring type I collagen to reconstitute in vitro models of small intestinal tissue

M. Verhulsel, S. Descroix, L. Malaquin, D. M. Vignjevic, J. Viovy;

Institut Curie, Paris, FRANCE.

VASCULATURE

M430 Patient specific abdominal aortic aneurysm segmental elastic materials properties in finite element modeling of rupture risk

A. P. Tierney¹, A. Callanan², T. M. Mcgloughlin¹;

¹University of Limerick, IRELAND, ²The University of Edinburgh, UNITED KINGDOM.

M431 A Combined Experimental and Computational Study of the Impact of Anesthesia on Pulse Wave Velocity Measurements in Mice

F. Cuomo¹, J. Ferruzzi², J. D. Humphrey², C. Figueroa¹;

¹King's College London, UNITED KINGDOM, ²Yale University, New Haven, CT.

M432 A novel approach to evaluating the radial distensibility of the large pulmonary artery branches

J. D. Henningsen, A. Bellofiore, A. Roldan-Alzate, H. B.

Kellihan, D. Consigny, C. J. Francois, N. Chesler;

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