



Journal of
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Editorial

The 2021 Richard Skalak Award and the 2021 Editors' Choice Papers

Each year, the associate editors of the ASME *Journal of Biomechanical Engineering* identify the most meritorious papers published in the Journal in the previous calendar year. An external committee then selects the best paper of the year from this list of Editors' Choice papers. The authors of this paper are the recipients of the Richard Skalak Award, named after an early leader within the ASME Bioengineering community. Richard Skalak (1923–1997), who played a leadership role in the formative decades of the discipline of biomedical engineering through his technical contributions in biomechanics, his educational influence on students, and his service to many developing societies and journals. Richard Skalak believed in several central approaches to bioengineering and several central values in working with people. In bioengineering, these were: (1) the useful combination of mathematical and computational modeling with experimental results, to better inform the new biological understanding that is derived, and (2) the inclusion of both microscale and macroscale phenomena in understanding complex biological systems. In terms of mentoring students and collaborating with colleagues, these were: (1) share ideas freely, (2) listen to ideas of others and integrate the best into new developments, and (3) show tolerance and respect for others at all times. These tenets help to guide us as a community and as a journal, and we are honored by the opportunity to contribute to Richard Skalak's legacy by giving an award bearing his name.

The Editors thank the 2021 Skalak Award committee: Liesbet Geris (chair), Harry van Lenthe, Joel Boerckel, Michelle Oyen, Claire Villette, and Himanshu Kaul. Congratulations to the authors of the Skalak Award winner and to the authors of the Editors' Choice papers.

The 2021 Skalak Award Winner

Eleftheria Michalaki, Zhanna Nepiyushchikh, Josephine M. Rudd, Fabrice C. Bernard, Anish Mukherjee, Jay M. McKinney, Thanh N. Doan, Nick J. Willett, J. Brandon Dixon, "Effect of Human Synovial Fluid From Osteoarthritis Patients and Healthy Individuals on Lymphatic Contractile Activity," *J Biomech Eng.* July 2022; 144(7): 071012. doi: [10.1115/1.4053749](https://doi.org/10.1115/1.4053749)

The 2021 Editors' Choice Papers

Brandon Zimmerman, Steve A. Mass, Jeffrey Weiss, Gerard Ateshian, "A Finite Element Algorithm for Large Deformation Biphasic Frictional Contact between Porous-Permeable Hydrated

Soft Tissues," *J Biomech Eng.* February 2022; 144(2): 021008. doi: [10.1115/1.4052114](https://doi.org/10.1115/1.4052114)

Rayanne Pinto Costa, Blaise Simplicite Talla Nwotchouang, Junyao Yao, Dipankar Biswas, David Casey, Ruel McKenzie, David A. Steinman, Francis Loth, "Transition to Turbulence Downstream of a Stenosis for Whole Book and a Newtonian Analog under Steady Flow Conditions," *J Biomech Eng.* March 2022; 144(3): 031008. doi: [10.1115/1.4052370](https://doi.org/10.1115/1.4052370)

Eleftheria Michalaki, Zhanna Nepiyushchikh, Josephine M. Rudd, Fabrice C. Bernard, Anish Mukherjee, Jay M. McKinney, Thanh N. Doan, Nick J. Willett, J. Brandon Dixon, "Effect of Human Synovial Fluid From Osteoarthritis Patients and Healthy Individuals on Lymphatic Contractile Activity," *J Biomech Eng.* July 2022; 144(7): 071012. doi: [10.1115/1.4053749](https://doi.org/10.1115/1.4053749)

Rawal Atul, Kristen Rhinehardt, Ram Mohan, Max Pendse, "Influence of Hydroxyproline on Mechanical Behavior of Collagen Mimetic Proteins Under Fraying Deformation-Molecular Dynamics Investigations," *J Biomech Eng.* August 2021; 143(8): 081009. doi: [10.1115/1.4050648](https://doi.org/10.1115/1.4050648)

Jordan V. Inacio, Peter Schwarzenberg, Richard Yoon, Andrew Kantzos, Ajith Malige, Chinenye Nwachuku, Hannah Dailey, "Boundary Conditions Matter - Impact of Test Setup on Inferred Construct Mechanics in Plated Distal Femur Osteotomies," *J Biomech Eng.* August 2022; 144(8): 081009. doi: [10.1115/1.4053875](https://doi.org/10.1115/1.4053875)

Ge He, Lei Fan, Yucheng Liu, "Mesoscale Simulation-Based Parametric Study of Damage Potential in Brain Tissue Using Hyperelastic and Internal State Variable Models," *J Biomech Eng.* July 2022; 144(7): 071005. doi: [10.1115/1.4053205](https://doi.org/10.1115/1.4053205)

Peter A. Torzilli, Samie M. Allen, "Effect of Articular Surface Compression on Cartilage Extracellular Matrix Deformation," *J Biomech Eng.* September 2022; 144(9): 091007. doi: [10.1115/1.4054108](https://doi.org/10.1115/1.4054108)

Elizabeth Iffrig, Lucas Timmins, Retta El Sayed, W. Robert Taylor, John Oshinski, "Quantification of Sex-based Differences in Abdominal Aortic Wall Shear Stress Using a Methodology based on Magnetic Resonance Phase Contrast Imaging and the Womersley Solution," *J Biomech Eng.* September 2022; 144(9): 091011. doi: [10.1115/1.4054236](https://doi.org/10.1115/1.4054236)

Luke Nigro, Elisa Arch, "Comparison of Existing Methods for Characterizing Bi-Linear Natural Ankle Quasi-Stiffness: Implications for Passive Orthosis Design," *J Biomech Eng.* November 2022; 144(11): 114502. doi: [10.1115/1.4054798](https://doi.org/10.1115/1.4054798)

Jack Callaghan, Jackie Zehr, "Reaction Forces and Flexion-Extension Moments Imposed on Functional Spinal Units With Constrained and Unconstrained In Vitro Testing Systems," *J Biomech Eng.* May 2022; 144(5): 054501. doi: [10.1115/1.4053208](https://doi.org/10.1115/1.4053208)

Duane, Cronin, Michael Bustamante, Jeffrey Barker, Karin Rafaels, Cynthia Bir, "Assessment of Thorax Finite Element Model Response for Behind Armor Blunt Trauma Impact Loading Using an Epidemiological Database," *J Biomech Eng.* March 2021; 143(3): 031007. doi: [10.1115/1.4048644](https://doi.org/10.1115/1.4048644)

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