Jay D Humphrey

List of Publications by Year
in descending order

272 papers	17,170 citations	15495 65 h-index	21521 114 g-index
281 all docs	281 docs citations	281 times ranked	11369 citing authors

#	Article	IF	Citations
1	Mechanotransduction and extracellular matrix homeostasis. Nature Reviews Molecular Cell Biology, 2014, 15, 802-812.	16.1	1,492
2	Cardiovascular Solid Mechanics. , 2002, , .		765
3	A CONSTRAINED MIXTURE MODEL FOR GROWTH AND REMODELING OF SOFT TISSUES. Mathematical Models and Methods in Applied Sciences, 2002, 12, 407-430.	1.7	619
4	Perspectives on biological growth and remodeling. Journal of the Mechanics and Physics of Solids, 2011, 59, 863-883.	2.3	371
5	Vascular Adaptation and Mechanical Homeostasis at Tissue, Cellular, and Sub-cellular Levels. Cell Biochemistry and Biophysics, 2008, 50, 53-78.	0.9	346
6	Role of Mechanotransduction in Vascular Biology. Circulation Research, 2015, 116, 1448-1461.	2.0	299
7	Intracranial and Abdominal Aortic Aneurysms: Similarities, Differences, and Need for a New Class of Computational Models. Annual Review of Biomedical Engineering, 2008, 10, 221-246.	5.7	269
8	Stress-Modulated Growth, Residual Stress, and Vascular Heterogeneity. Journal of Biomechanical Engineering, 2001, 123, 528-535.	0.6	258
9	Mechanics, mechanobiology, and modeling of human abdominal aorta and aneurysms. Journal of Biomechanics, 2012, 45, 805-814.	0.9	257
10	Mechanisms of Arterial Remodeling in Hypertension. Hypertension, 2008, 52, 195-200.	1.3	256
11	Determination of a Constitutive Relation for Passive Myocardium: I. A New Functional Form. Journal of Biomechanical Engineering, 1990, 112, 333-339.	0.6	249
12	A Theoretical Model of Enlarging Intracranial Fusiform Aneurysms. Journal of Biomechanical Engineering, 2006, 128, 142-149.	0.6	245
13	Determination of a Constitutive Relation for Passive Myocardium: II.â€"Parameter Estimation. Journal of Biomechanical Engineering, 1990, 112, 340-346.	0.6	239
14	Fundamental role of axial stress in compensatory adaptations by arteries. Journal of Biomechanics, 2009, 42, 1-8.	0.9	235
15	Tgfbr2 disruption in postnatal smooth muscle impairs aortic wall homeostasis. Journal of Clinical Investigation, 2014, 124, 755-767.	3.9	223
16	Arterial Stiffness and Cardiovascular Risk in Hypertension. Circulation Research, 2021, 128, 864-886.	2.0	213
17	On Constitutive Relations and Finite Deformations of Passive Cardiac Tissue: I. A Pseudostrain-Energy Function. Journal of Biomechanical Engineering, 1987, 109, 298-304.	0.6	186
18	Complementary vasoactivity and matrix remodelling in arterial adaptations to altered flow and pressure. Journal of the Royal Society Interface, 2009, 6, 293-306.	1.5	184

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19	A computational framework for fluidâ€"solid-growth modeling in cardiovascular simulations. Computer Methods in Applied Mechanics and Engineering, 2009, 198, 3583-3602.	3.4	179
20	Vascular remodeling is governed by a VEGFR3-dependent fluid shear stress set point. ELife, 2015, 4, .	2.8	177
21	Origin of axial prestretch and residual stress in arteries. Biomechanics and Modeling in Mechanobiology, 2009, 8, 431-446.	1.4	162
22	Elastodynamics and Arterial Wall Stress. Annals of Biomedical Engineering, 2002, 30, 509-523.	1.3	161
23	On constitutive descriptors of the biaxial mechanical behaviour of human abdominal aorta and aneurysms. Journal of the Royal Society Interface, 2011, 8, 435-450.	1.5	152
24	Biomechanical Phenotyping of Central Arteries in Health and Disease: Advantages of and Methods for Murine Models. Annals of Biomedical Engineering, 2013, 41, 1311-1330.	1.3	149
25	A constrained mixture model for arterial adaptations to a sustained step change in blood flow. Biomechanics and Modeling in Mechanobiology, 2003, 2, 109-126.	1.4	148
26	A Multiaxial Computer-Controlled Organ Culture and Biomechanical Device for Mouse Carotid Arteries. Journal of Biomechanical Engineering, 2004, 126, 787-795.	0.6	144
27	Growth and remodelling of living tissues: perspectives, challenges and opportunities. Journal of the Royal Society Interface, 2019, 16, 20190233.	1.5	142
28	A Microstructurally Motivated Model of Arterial Wall Mechanics with Mechanobiological Implications. Annals of Biomedical Engineering, 2014, 42, 488-502.	1.3	141
29	A Mixture Model of Arterial Growth and Remodeling in Hypertension: Altered Muscle Tone and Tissue Turnover. Journal of Vascular Research, 2004, 41, 352-363.	0.6	140
30	Growth and remodeling in a thick-walled artery model: effects of spatial variations in wall constituents. Biomechanics and Modeling in Mechanobiology, 2008, 7, 245-262.	1.4	137
31	Central Artery Stiffness in Hypertension and Aging. Circulation Research, 2016, 118, 379-381.	2.0	137
32	Syndecan 4 is required for endothelial alignment in flow and atheroprotective signaling. Proceedings of the National Academy of Sciences of the United States of America, 2014, 111, 17308-17313.	3.3	133
33	Dysfunctional Mechanosensing in Aneurysms. Science, 2014, 344, 477-479.	6.0	133
34	Stress, Strain, and Mechanotransduction in Cells. Journal of Biomechanical Engineering, 2001, 123, 638-641.	0.6	121
35	Mechanical assessment of elastin integrity in fibrillin-1-deficient carotid arteries: implications for Marfan syndrome. Cardiovascular Research, 2011, 92, 287-295.	1.8	119
36	Growth and remodeling of load-bearing biological soft tissues. Meccanica, 2017, 52, 645-664.	1.2	119

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37	Influence of size, shape and properties on the mechanics of axisymmetric saccular aneurysms. Journal of Biomechanics, 1996, 29, 1015-1022.	0.9	116
38	Smooth Muscle Cell Reprogramming in Aortic Aneurysms. Cell Stem Cell, 2020, 26, 542-557.e11.	5.2	114
39	A haemodynamic predictor of intraluminal thrombus formation in abdominal aortic aneurysms. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2014, 470, 20140163.	1.0	112
40	Possible Mechanical Roles of Glycosaminoglycans in Thoracic Aortic Dissection and Associations with Dysregulated Transforming Growth Factor-Î². Journal of Vascular Research, 2013, 50, 1-10.	0.6	111
41	Quantification of regional differences in aortic stiffness in the aging human. Journal of the Mechanical Behavior of Biomedical Materials, 2014, 29, 618-634.	1.5	106
42	A General Shear-Dependent Model for Thrombus Formation. PLoS Computational Biology, 2017, 13, e1005291.	1.5	104
43	A 2-D Model of Flow-Induced Alterations in the Geometry, Structure, and Properties of Carotid Arteries. Journal of Biomechanical Engineering, 2004, 126, 371-381.	0.6	103
44	A homogenized constrained mixture (and mechanical analog) model for growth and remodeling of soft tissue. Biomechanics and Modeling in Mechanobiology, 2016, 15, 1389-1403.	1.4	103
45	Remodeling of a Collagenous Tissue at Fixed Lengths. Journal of Biomechanical Engineering, 1999, 121, 591-597.	0.6	98
46	Multi-scale computational model of three-dimensional hemodynamics within a deformable full-body arterial network. Journal of Computational Physics, 2013, 244, 22-40.	1.9	96
47	Differential cell-matrix mechanoadaptations and inflammation drive regional propensities to aortic fibrosis, aneurysm or dissection in hypertension. Journal of the Royal Society Interface, 2017, 14, 20170327.	1.5	95
48	Inhibition of MicroRNA-29 Enhances Elastin Levels in Cells Haploinsufficient for Elastin and in Bioengineered Vesselsâ€"Brief Report. Arteriosclerosis, Thrombosis, and Vascular Biology, 2012, 32, 756-759.	1.1	94
49	Importance of initial aortic properties on the evolving regional anisotropy, stiffness and wall thickness of human abdominal aortic aneurysms. Journal of the Royal Society Interface, 2012, 9, 2047-2058.	1.5	94
50	Biomechanical roles of medial pooling of glycosaminoglycans in thoracic aortic dissection. Biomechanics and Modeling in Mechanobiology, 2014, 13, 13-25.	1.4	93
51	Excessive Adventitial Remodeling Leads to Early Aortic Maladaptation in Angiotensin-Induced Hypertension. Hypertension, 2016, 67, 890-896.	1.3	93
52	Comparison of 10 murine models reveals a distinct biomechanical phenotype in thoracic aortic aneurysms. Journal of the Royal Society Interface, 2017, 14, 20161036.	1.5	92
53	Evaluation of fundamental hypotheses underlying constrained mixture models ofÂarterial growth and remodelling. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2009, 367, 3585-3606.	1.6	86
54	Biochemomechanics of Intraluminal Thrombus in Abdominal Aortic Aneurysms. Journal of Biomechanical Engineering, 2013, 135, 021011.	0.6	85

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55	Biochemomechanics of Cerebral Vasospasm and its Resolution: II. Constitutive Relations and Model Simulations. Annals of Biomedical Engineering, 2007, 35, 1498-1509.	1.3	82
56	Non-invasive inference of thrombus material properties with physics-informed neural networks. Computer Methods in Applied Mechanics and Engineering, 2021, 375, 113603.	3.4	82
57	Spontaneous reversal of stenosis in tissue-engineered vascular grafts. Science Translational Medicine, 2020, 12, .	5.8	81
58	Novel Methodology for Characterizing Regional Variations in the Material Properties of Murine Aortas. Journal of Biomechanical Engineering, 2016, 138, .	0.6	77
59	Mechanics of Carotid Arteries in a Mouse Model of Marfan Syndrome. Annals of Biomedical Engineering, 2009, 37, 1093-1104.	1.3	76
60	Vascular Mechanobiology: Homeostasis, Adaptation, and Disease. Annual Review of Biomedical Engineering, 2021, 23, 1-27.	5.7	75
61	Importance of pulsatility in hypertensive carotid artery growth and remodeling. Journal of Hypertension, 2009, 27, 2010-2021.	0.3	74
62	A finite elementâ€based constrained mixture implementation for arterial growth, remodeling, and adaptation: Theory and numerical verification. International Journal for Numerical Methods in Biomedical Engineering, 2013, 29, 822-849.	1.0	74
63	Vascular homeostasis and the concept of mechanobiological stability. International Journal of Engineering Science, 2014, 85, 203-223.	2.7	74
64	Decreased Elastic Energy Storage, Not Increased Material Stiffness, Characterizes Central Artery Dysfunction in Fibulin-5 Deficiency Independent of Sex. Journal of Biomechanical Engineering, 2015, 137, .	0.6	74
65	Enabling tools for engineering collagenous tissues integrating bioreactors, intravital imaging, and biomechanical modeling. Proceedings of the National Academy of Sciences of the United States of America, 2010, 107, 3335-3339.	3.3	72
66	Long-Term Functional Efficacy of a Novel Electrospun Poly(Glycerol Sebacate)-Based Arterial Graft in Mice. Annals of Biomedical Engineering, 2016, 44, 2402-2416.	1.3	71
67	A Constitutive Theory for Biomembranes: Application to Epicardial Mechanics. Journal of Biomechanical Engineering, 1992, 114, 461-466.	0.6	70
68	Effects of a sustained extension on arterial growth and remodeling: a theoretical study. Journal of Biomechanics, 2005, 38, 1255-1261.	0.9	69
69	Competition Between Radial Expansion and Thickening in the Enlargement of an Intracranial Saccular Aneurysm. Journal of Elasticity, 2005, 80, 13-31.	0.9	66
70	Biaxial biomechanical adaptations of mouse carotid arteries cultured at altered axial extension. Journal of Biomechanics, 2007, 40, 766-776.	0.9	66
71	Computational modelling suggests good, bad and ugly roles of glycosaminoglycans in arterial wall mechanics and mechanobiology. Journal of the Royal Society Interface, 2014, 11, 20140397.	1.5	66
72	Pharmacologically Improved Contractility Protects Against Aortic Dissection in Mice With Disrupted Transforming Growth Factor-Î² Signaling Despite Compromised Extracellular Matrix Properties. Arteriosclerosis, Thrombosis, and Vascular Biology, 2016, 36, 919-927.	1.1	65

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73	Origin of Matrix-Producing Cells That Contribute to Aortic Fibrosis in Hypertension. Hypertension, 2016, 67, 461-468.	1.3	65
74	Characterization of the Natural History of Extracellular Matrix Production in Tissue-Engineered Vascular Grafts during Neovessel Formation. Cells Tissues Organs, 2012, 195, 60-72.	1.3	64
75	An Evaluation of Pseudoelastic Descriptors Used in Arterial Mechanics. Journal of Biomechanical Engineering, 1999, 121, 259-262.	0.6	63
76	Continuum Mixture Models of Biological Growth and Remodeling: Past Successes and Future Opportunities. Annual Review of Biomedical Engineering, 2012, 14, 97-111.	5.7	63
77	Biaxial Stretch Improves Elastic Fiber Maturation, Collagen Arrangement, and Mechanical Properties in Engineered Arteries. Tissue Engineering - Part C: Methods, 2016, 22, 524-533.	1.1	63
78	Computer-aided vascular experimentation: A new electromechanical test system. Annals of Biomedical Engineering, 1993, 21, 33-43.	1.3	62
79	Characterization of Engineered Tissue Development Under Biaxial Stretch Using Nonlinear Optical Microscopy. Tissue Engineering - Part A, 2009, 15, 1553-1564.	1.6	62
80	Time-dependent Changes in Smooth Muscle Cell Stiffness and Focal Adhesion Area in Response to Cyclic Equibiaxial Stretch. Annals of Biomedical Engineering, 2008, 36, 369-380.	1.3	59
81	Parametric study of effects of collagen turnover on the natural history of abdominal aortic aneurysms. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2013, 469, 20120556.	1.0	59
82	Effects of age-associated regional changes in aortic stiffness on human hemodynamics revealed by computational modeling. PLoS ONE, 2017, 12, e0173177.	1.1	59
83	Chronic mTOR activation induces a degradative smooth muscle cell phenotype. Journal of Clinical Investigation, 2020, 130, 1233-1251.	3.9	59
84	A hypothesis-driven parametric study of effects of polymeric scaffold properties on tissue engineered neovessel formation. Acta Biomaterialia, 2015, 11, 283-294.	4.1	58
85	Computer Methods in Membrane Biomechanics. Computer Methods in Biomechanics and Biomedical Engineering, 1998, 1, 171-210.	0.9	57
86	A Multi-Layered Computational Model of Coupled Elastin Degradation, Vasoactive Dysfunction, and Collagenous Stiffening in Aortic Aging. Annals of Biomedical Engineering, 2011, 39, 2027-2045.	1.3	57
87	Mechanobiological stability: a new paradigm to understand the enlargement of aneurysms?. Journal of the Royal Society Interface, 2014, 11, 20140680.	1.5	55
88	Mechanisms of Vascular Remodeling in Hypertension. American Journal of Hypertension, 2021, 34, 432-441.	1.0	54
89	Constitutive relations and finite deformations of passive cardiac tissue II: stress analysis in the left ventricle.. Circulation Research, 1989, 65, 805-817.	2.0	52
90	Local variations in material and structural properties characterize murine thoracic aortic aneurysm mechanics. Biomechanics and Modeling in Mechanobiology, 2019, 18, 203-218.	1.4	52

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91	Immuno-driven and Mechano-mediated Neotissue Formation in Tissue Engineered Vascular Grafts. Annals of Biomedical Engineering, 2018, 46, 1938-1950.	1.3	51
92	A three-dimensional phase-field model for multiscale modeling of thrombus biomechanics in blood vessels. PLoS Computational Biology, 2020, 16, e1007709.	1.5	51
93	An improved panoramic digital image correlation method for vascular strain analysis and material characterization. Journal of the Mechanical Behavior of Biomedical Materials, 2013, 27, 132-142.	1.5	49
94	Biaxial mechanical behavior of excised ventricular epicardium. American Journal of Physiology - Heart and Circulatory Physiology, 1990, 259, H101-H108.	1.5	47
95	Biomechanical Diversity Despite Mechanobiological Stability in Tissue Engineered Vascular Grafts Two Years Post-Implantation. Tissue Engineering - Part A, 2015, 21, 1529-1538.	1.6	47
96	Compromised mechanical homeostasis in arterial aging and associated cardiovascular consequences. Biomechanics and Modeling in Mechanobiology, 2018, 17, 1281-1295.	1.4	47
97	Optimization of Tissue-Engineered Vascular Graft Design Using Computational Modeling. Tissue Engineering - Part C: Methods, 2019, 25, 561-570.	1.1	47
98	Parameter Sensitivity Study of a Constrained Mixture Model of Arterial Growth and Remodeling. Journal of Biomechanical Engineering, 2009, 131, 101006.	0.6	45
99	Deficient Circumferential Growth Is the Primary Determinant of Aortic Obstruction Attributable to Partial Elastin Deficiency. Arteriosclerosis, Thrombosis, and Vascular Biology, 2017, 37, 930-941.	1.1	45
100	Biomechanical experiments on excised myocardium: Theoretical considerations. Journal of Biomechanics, 1989, 22, 377-383.	0.9	44
101	Time course of carotid artery growth and remodeling in response to altered pulsatility. American Journal of Physiology - Heart and Circulatory Physiology, 2010, 299, H1875-H1883.	1.5	44
102	<mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" altimg="si0033.gif" overflow="scroll"><mml:mi mathvariant="italic">Myh</mml:mi><mml:msup><mml:mrow><mml:mi mathvariant="italic">11</mml:mi></mml:mrow><mml:mrow><mml:mi>R</mml:mi><mml:mn>247</mml:mn><mml:mi>C</mml:mi><m mutations increase thoracic aorta vulnerability to intramural damage despite a general biomechanical adaptivity. Journal of Biomechanics, 2015, 48, 113-121.	0.9	44
103	Central artery stiffness and thoracic aortopathy. American Journal of Physiology - Heart and Circulatory Physiology, 2019, 316, H169-H182.	1.5	44
104	Integrating blood cell mechanics, platelet adhesive dynamics and coagulation cascade for modelling thrombus formation in normal and diabetic blood. Journal of the Royal Society Interface, 2021, 18, 20200834.	1.5	44
105	Mechanics of the arterial wall: review and directions. Critical Reviews in Biomedical Engineering, 1995, 23, 1-162.	0.5	44
106	Biochemomechanics of Cerebral Vasospasm and its Resolution: I. A New Hypothesis and Theoretical Framework. Annals of Biomedical Engineering, 2007, 35, 1485-1497.	1.3	43
107	Computational model of the in vivo development of a tissue engineered vein from an implanted polymeric construct. Journal of Biomechanics, 2014, 47, 2080-2087.	0.9	43
108	Consistent Biomechanical Phenotyping of Common Carotid Arteries from Seven Genetic, Pharmacological, and Surgical Mouse Models. Annals of Biomedical Engineering, 2014, 42, 1207-1223.	1.3	43

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109	Modeling mechano-driven and immuno-mediated aortic maladaptation in hypertension. Biomechanics and Modeling in Mechanobiology, 2018, 17, 1497-1511.	1.4	42
110	A multilayered wall model of arterial growth and remodeling. Mechanics of Materials, 2012, 44, 110-119.	1.7	40
111	Remodeling of Intramural Thrombus and Collagen in an Ang-II Infusion ApoEâˆ'/âˆ' Model of Dissecting Aortic Aneurysms. Thrombosis Research, 2012, 130, e139-e146.	0.8	39
112	Characterization of evolving biomechanical properties of tissue engineered vascular grafts in the arterial circulation. Journal of Biomechanics, 2014, 47, 2070-2079.	0.9	39
113	Combining in vivo and in vitro biomechanical data reveals key roles of perivascular tethering in central artery function. PLoS ONE, 2018, 13, e0201379.	1.1	39
114	Cell signaling model for arterial mechanobiology. PLoS Computational Biology, 2020, 16, e1008161.	1.5	39
115	Beyond Burst Pressure: Initial Evaluation of the Natural History of the Biaxial Mechanical Properties of Tissue-Engineered Vascular Grafts in the Venous Circulation Using a Murine Model. Tissue Engineering - Part A, 2014, 20, 346-355.	1.6	38
116	Constrained Mixture Models of Soft Tissue Growth and Remodeling â€" Twenty Years After. Journal of Elasticity, 2021, 145, 49-75.	0.9	38
117	A 3-D framework for arterial growth and remodeling in response to altered hemodynamics. International Journal of Engineering Science, 2010, 48, 1357-1372.	2.7	37
118	Differential ascending and descending aortic mechanics parallel aneurysmal propensity in a mouse model of Marfan syndrome. Journal of Biomechanics, 2016, 49, 2383-2389.	0.9	37
119	VASCULAR MECHANICS, MECHANOBIOLOGY, AND REMODELING. Journal of Mechanics in Medicine and Biology, 2009, 09, 243-257.	0.3	36
120	Ensuring Congruency in Multiscale Modeling: Towards Linking Agent Based and Continuum Biomechanical Models of Arterial Adaptation. Annals of Biomedical Engineering, 2011, 39, 2669-2682.	1.3	36
121	Multi-Modality Imaging Enables Detailed Hemodynamic Simulations in Dissecting Aneurysms in Mice. IEEE Transactions on Medical Imaging, 2017, 36, 1297-1305.	5.4	36
122	Mechanical homeostasis in tissue equivalents: a review. Biomechanics and Modeling in Mechanobiology, 2021, 20, 833-850.	1.4	36
123	A potential role of smooth muscle tone in early hypertension: a theoretical study. Journal of Biomechanics, 2003, 36, 1595-1601.	0.9	35
124	An augmented iterative method for identifying a stress-free reference configuration in image-based biomechanical modeling. Journal of Biomechanics, 2017, 58, 227-231.	0.9	35
125	Modeling Soft Tissue Damage and Failure Using a Combined Particle/Continuum Approach. Biomechanics and Modeling in Mechanobiology, 2017, 16, 249-261.	1.4	35
126	On atomic force microscopy and the constitutive behavior of living cells. Biomechanics and Modeling in Mechanobiology, 2004, 3, 75-84.	1.4	34

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127	Digital image correlation-based point-wise inverse characterization of heterogeneous material properties of gallbladder <i>in vitro</i>. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2014, 470, 20140152.	1.0	34
128	Reduced Biaxial Contractility in the Descending Thoracic Aorta of Fibulin-5 Deficient Mice. Journal of Biomechanical Engineering, 2016, 138, 051008.	0.6	34
129	Gradual loading ameliorates maladaptation in computational simulations of vein graft growth and remodelling. Journal of the Royal Society Interface, 2017, 14, 20160995.	1.5	34
130	Differential outcomes of venous and arterial tissue engineered vascular grafts highlight the importance of coupling long-term implantation studies with computational modeling. Acta Biomaterialia, 2019, 94, 183-194.	4.1	34
131	A microstructurally inspired damage model for early venous thrombus. Journal of the Mechanical Behavior of Biomedical Materials, 2016, 55, 12-20.	1.5	33
132	A mechanobiologically equilibrated constrained mixture model for growth and remodeling of soft tissues. ZAMM Zeitschrift Fur Angewandte Mathematik Und Mechanik, 2018, 98, 2048-2071.	0.9	33
133	Arterial Stiffness: Different Metrics, Different Meanings. Journal of Biomechanical Engineering, 2019, 141, .	0.6	33
134	Finite extension and torsion of papillary muscles: A theoretical framework. Journal of Biomechanics, 1992, 25, 541-547.	0.9	32
135	Histological and biomechanical changes in aÂmouse model of venous thrombus remodeling. Biorheology, 2015, 52, 235-245.	1.2	32
136	The use of Laplaceâ€™s equation in aneurysm mechanics. Neurological Research, 1996, 18, 204-208.	0.6	31
137	A theoretically-motivated biaxial tissue culture system with intravital microscopy. Biomechanics and Modeling in Mechanobiology, 2008, 7, 323-334.	1.4	31
138	A mathematical model of evolving mechanical properties of intraluminal thrombus. Biorheology, 2009, 46, 509-527.	1.2	30
139	Novel optical system for<i>in vitro</i>quantification of full surface strain fields in small arteries: I. Theory and design. Computer Methods in Biomechanics and Biomedical Engineering, 2011, 14, 213-225.	0.9	29
140	Design and Use of a Novel Bioreactor for Regeneration of Biaxially Stretched Tissue-Engineered Vessels. Tissue Engineering - Part C: Methods, 2015, 21, 841-851.	1.1	29
141	Computational Simulation of the Adaptive Capacity of Vein Grafts in Response to Increased Pressure. Journal of Biomechanical Engineering, 2015, 137, .	0.6	29
142	Evolving biaxial mechanical properties of mouse carotid arteries in hypertension. Journal of Biomechanics, 2011, 44, 2532-2537.	0.9	28
143	Loss of elastic fiber integrity compromises common carotid artery function: Implications for vascular aging. Artery Research, 2016, 14, 41.	0.3	28
144	Developmental origins of mechanical homeostasis in the aorta. Developmental Dynamics, 2021, 250, 629-639.	0.8	28

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145	Mechanical restrictions on biological responses by adherent cells within collagen gels. Journal of the Mechanical Behavior of Biomedical Materials, 2012, 14, 216-226.	1.5	27
146	An efficient framework for optimization and parameter sensitivity analysis in arterial growth and remodeling computations. Computer Methods in Applied Mechanics and Engineering, 2013, 256, 200-210.	3.4	27
147	Mechanobiological stability of biological soft tissues. Journal of the Mechanics and Physics of Solids, 2019, 125, 298-325.	2.3	27
148	Maladaptive aortic remodeling in hypertension associates with dysfunctional smooth muscle contractility. American Journal of Physiology - Heart and Circulatory Physiology, 2019, 316, H265-H278.	1.5	27
149	A new paradigm for graduate research and training in the biomedical sciences and engineering. American Journal of Physiology - Advances in Physiology Education, 2005, 29, 98-102.	0.8	26
150	Biaxial mechanical properties of the inferior vena cava in C57BL/6 and CB-17 SCID/bg mice. Journal of Biomechanics, 2013, 46, 2277-2282.	0.9	26
151	A Computational Model of Biochemomechanical Effects of Intraluminal Thrombus on the Enlargement of Abdominal Aortic Aneurysms. Annals of Biomedical Engineering, 2015, 43, 2852-2867.	1.3	26
152	mTOR (Mechanistic Target of Rapamycin) Inhibition Decreases Mechanosignaling, Collagen Accumulation, and Stiffening of the Thoracic Aorta in Elastin-Deficient Mice. Arteriosclerosis, Thrombosis, and Vascular Biology, 2017, 37, 1657-1666.	1.1	26
153	Critical roles of time-scales in soft tissue growth and remodeling. APL Bioengineering, 2018, 2, 026108.	3.3	26
154	From Transcript to Tissue: Multiscale Modeling from Cell Signaling to Matrix Remodeling. Annals of Biomedical Engineering, 2021, 49, 1701-1715.	1.3	26
155	Disparate changes in the mechanical properties of murine carotid arteries and aorta in response to chronic infusion of angiotensin-II. International Journal of Advances in Engineering Sciences and Applied Mathematics, 2012, 4, 228-240.	0.7	25
156	Distinct macrophage phenotype and collagen organization within the intraluminal thrombus of abdominal aortic aneurysm. Journal of Vascular Surgery, 2015, 62, 585-593.	0.6	24
157	Computational modeling predicts immuno-mechanical mechanisms of maladaptive aortic remodeling in hypertension. International Journal of Engineering Science, 2019, 141, 35-46.	2.7	24
158	Excessive adventitial stress drives inflammation-mediated fibrosis in hypertensive aortic remodelling in mice. Journal of the Royal Society Interface, 2021, 18, 20210336.	1.5	24
159	Mechanics-driven mechanobiological mechanisms of arterial tortuosity. Science Advances, 2020, 6, .	4.7	24
160	Biaxial Mechanical Behavior of Excised Epicardium. Journal of Biomechanical Engineering, 1988, 110, 349-351.	0.6	23
161	Modelling carotid artery adaptations to dynamic alterations in pressure and flow over the cardiac cycle. Mathematical Medicine and Biology, 2010, 27, 343-371.	0.8	23
162	A Computational Model of the Biochemomechanics of an Evolving Occlusive Thrombus. Journal of Elasticity, 2017, 129, 125-144.	0.9	23

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163	Data-driven Modeling of Hemodynamics and its Role on Thrombus Size and Shape in Aortic Dissections. Scientific Reports, 2018, 8, 2515.	1.6	23
164	A computational framework for modeling cellâ€“matrix interactions in soft biological tissues. Biomechanics and Modeling in Mechanobiology, 2021, 20, 1851-1870.	1.4	23
165	Hemodynamic performance of tissue-engineered vascular grafts in Fontan patients. Npj Regenerative Medicine, 2021, 6, 38.	2.5	23
166	A theoretically-based experimental approach for identifying vascular constitutive relations. Biorheology, 1989, 26, 687-702.	1.2	22
167	Modeling effects of axial extension on arterial growth and remodeling. Medical and Biological Engineering and Computing, 2009, 47, 979-987.	1.6	22
168	An Experimentalâ€“Computational Study of Catheter Induced Alterations in Pulse Wave Velocity in Anesthetized Mice. Annals of Biomedical Engineering, 2015, 43, 1555-1570.	1.3	22
169	Multiscale and Multiaxial Mechanics of Vascular Smooth Muscle. Biophysical Journal, 2017, 113, 714-727.	0.2	22
170	Modeling lamellar disruption within the aortic wall using a particle-based approach. Scientific Reports, 2019, 9, 15320.	1.6	22
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