Gerhard A Holzapfel

List of Publications by Year
in descending order

228 papers	19,923 citations	12330 69 h-index	11939 134 g-index
236 all docs	236 docs citations	236 times ranked	8618 citing authors

#	Article	IF	Citations
1	A New Constitutive Framework for Arterial Wall Mechanics and a Comparative Study of Material Models. Journal of Elasticity, 2000, 61, 1-48.	1.9	2,105
2	Hyperelastic modelling of arterial layers with distributed collagen fibre orientations. Journal of the Royal Society Interface, 2006, 3, 15-35.	3.4	1,828
3	Determination of layer-specific mechanical properties of human coronary arteries with nonatherosclerotic intimal thickening and related constitutive modeling. American Journal of Physiology - Heart and Circulatory Physiology, 2005, 289, H2048-H2058.	3.2	775
4	Constitutive modelling of passive myocardium: a structurally based framework for material characterization. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2009, 367, 3445-3475.	3.4	588
5	Mechanical characterization of human brain tissue. Acta Biomaterialia, 2017, 48, 319-340.	8.3	423
6	A viscoelastic model for fiber-reinforced composites at finite strains: Continuum basis, computational aspects and applications. Computer Methods in Applied Mechanics and Engineering, 2001, 190, 4379-4403.	6.6	390
7	Constitutive modelling of arteries. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2010, 466, 1551-1597.	2.1	381
8	Perspectives on biological growth and remodeling. Journal of the Mechanics and Physics of Solids, 2011, 59, 863-883.	4.8	371
9	A structural model for the viscoelastic behavior of arterial walls: Continuum formulation and finite element analysis. European Journal of Mechanics, A/Solids, 2002, 21, 441-463.	3.7	367
10	Anisotropic Mechanical Properties of Tissue Components in Human Atherosclerotic Plaques. Journal of Biomechanical Engineering, 2004, 126, 657-665.	1.3	330
11	Brain tissue deforms similarly to filled elastomers and follows consolidation theory. Journal of the Mechanics and Physics of Solids, 2006, 54, 2592-2620.	4.8	315
12	Mechanics of the brain: perspectives, challenges, and opportunities. Biomechanics and Modeling in Mechanobiology, 2015, 14, 931-965.	2.8	289
13	Determination of the layer-specific distributed collagen fibre orientations in human thoracic and abdominal aortas and common iliac arteries. Journal of the Royal Society Interface, 2012, 9, 1275-1286.	3.4	288
14	Determination of material models for arterial walls from uniaxial extension tests and histological structure. Journal of Theoretical Biology, 2006, 238, 290-302.	1.7	276
15	A polyconvex framework for soft biological tissues. Adjustment to experimental data. International Journal of Solids and Structures, 2006, 43, 6052-6070.	2.7	270
16	Mechanics, mechanobiology, and modeling of human abdominal aorta and aneurysms. Journal of Biomechanics, 2012, 45, 805-814.	2.1	257
17	Comparison of a Multi-Layer Structural Model for Arterial Walls With a Fung-Type Model, and Issues of Material Stability. Journal of Biomechanical Engineering, 2004, 126, 264-275.	1.3	224
18	Biomechanical properties and microstructure of human ventricular myocardium. Acta Biomaterialia, 2015, 24, 172-192.	8.3	217

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19	Fifty Shades of Brain: A Review on the Mechanical Testing and Modeling of Brain Tissue. Archives of Computational Methods in Engineering, 2020, 27, 1187-1230.	10.2	215
20	A Layer-Specific Three-Dimensional Model for the Simulation of Balloon Angioplasty using Magnetic Resonance Imaging and Mechanical Testing. Annals of Biomedical Engineering, 2002, 30, 753-767.	2.5	212
21	A new viscoelastic constitutive model for continuous media at finite thermomechanical changes. International Journal of Solids and Structures, 1996, 33, 3019-3034.	2.7	210
22	Modelling non-symmetric collagen fibre dispersion in arterial walls. Journal of the Royal Society Interface, 2015, 12, 20150188.	3.4	200
23	Layer-Specific 3D Residual Deformations of Human Aortas with Non-Atherosclerotic Intimal Thickening. Annals of Biomedical Engineering, 2007, 35, 530-545.	2.5	192
24	Three-Dimensional Modeling and Computational Analysis of the Human Cornea Considering Distributed Collagen Fibril Orientations. Journal of Biomechanical Engineering, 2008, 130, 061006.	1.3	187
25	Changes in the Mechanical Environment of Stenotic Arteries During Interaction With Stents: Computational Assessment of Parametric Stent Designs. Journal of Biomechanical Engineering, 2005, 127, 166-180.	1.3	186
26	Layer-specific damage experiments and modeling of human thoracic and abdominal aortas with non-atherosclerotic intimal thickening. Journal of the Mechanical Behavior of Biomedical Materials, 2012, 12, 93-106.	3.1	186
27	Biomechanical behavior of the arterial wall and its numerical characterization. Computers in Biology and Medicine, 1998, 28, 377-392.	7.0	185
28	An Anisotropic Model for Annulus Tissue and Enhanced Finite Element Analyses of Intact Lumbar Disc Bodies. Computer Methods in Biomechanics and Biomedical Engineering, 2001, 4, 209-229.	1.6	172
29	Modelling the layer-specific three-dimensional residual stresses in arteries, with an application to the human aorta. Journal of the Royal Society Interface, 2010, 7, 787-799.	3.4	170
30	On planar biaxial tests for anisotropic nonlinearly elastic solids. A continuum mechanical framework. Mathematics and Mechanics of Solids, 2009, 14, 474-489.	2.4	154
31	Passive Biaxial Mechanical Response of Aged Human Iliac Arteries. Journal of Biomechanical Engineering, 2003, 125, 395-406.	1.3	153
32	Biaxial mechanical properties of intact and layer-dissected human carotid arteries at physiological and supraphysiological loadings. American Journal of Physiology - Heart and Circulatory Physiology, 2010, 298, H898-H912.	3.2	146
33	Dissection Properties of the Human Aortic Media: An Experimental Study. Journal of Biomechanical Engineering, 2008, 130, 021007.	1.3	143
34	A Novel Simulation Strategy for Stent Insertion and Deployment in Curved Coronary Bifurcations: Comparison of Three Drug-Eluting Stents. Annals of Biomedical Engineering, 2010, 38, 88-99.	2.5	140
35	Microstructure and mechanics of healthy and aneurysmatic abdominal aortas: experimental analysis and modelling. Journal of the Royal Society Interface, 2016, 13, 20160620.	3.4	137
36	Mechanical Stresses in Abdominal Aortic Aneurysms: Influence of Diameter, Asymmetry, and Material Anisotropy. Journal of Biomechanical Engineering, 2008, 130, 021023.	1.3	136

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37	A family of hyperelastic models for human brain tissue. Journal of the Mechanics and Physics of Solids, 2017, 106, 60-79.	4.8	130
38	Viscoelastic parameter identification of human brain tissue. Journal of the Mechanical Behavior of Biomedical Materials, 2017, 74, 463-476.	3.1	124
39	Rheological characterization of human brain tissue. Acta Biomaterialia, 2017, 60, 315-329.	8.3	124
40	Constitutive framework for the modeling of damage in collagenous soft tissues with application to arterial walls. Computer Methods in Applied Mechanics and Engineering, 2012, 213-216, 139-151.	6.6	123
41	Mechanics of the human femoral adventitia including the high-pressure response. American Journal of Physiology - Heart and Circulatory Physiology, 2002, 282, H2427-H2440.	3.2	121
42	Microglia mechanics: immune activation alters traction forces and durotaxis. Frontiers in Cellular Neuroscience, 2015, 9, 363.	3.7	113
43	Uniaxial tensile testing approaches for characterisation of atherosclerotic plaques. Journal of Biomechanics, 2014, 47, 793-804.	2.1	112
44	3D Crack propagation in unreinforced concrete.. Computer Methods in Applied Mechanics and Engineering, 2006, 195, 5198-5219.	6.6	110
45	Effects of Age on the Elastic Properties of the Intraluminal Thrombus and the Thrombus-covered Wall in Abdominal Aortic Aneurysms: Biaxial Extension Behaviour and Material Modelling. European Journal of Vascular and Endovascular Surgery, 2011, 42, 207-219.	1.5	109
46	On modelling and analysis of healthy and pathological human mitral valves: Two case studies. Journal of the Mechanical Behavior of Biomedical Materials, 2010, 3, 167-177.	3.1	106
47	Modeling the propagation of arterial dissection. European Journal of Mechanics, A/Solids, 2006, 25, 617-633.	3.7	102
48	Computational approaches for analyzing the mechanics of atherosclerotic plaques: A review. Journal of Biomechanics, 2014, 47, 859-869.	2.1	102
49	Biomechanics of aortic wall failure with a focus on dissection and aneurysm: A review. Acta Biomaterialia, 2019, 99, 1-17.	8.3	99
50	An automated approach for three-dimensional quantification of fibrillar structures in optically cleared soft biological tissues. Journal of the Royal Society Interface, 2013, 10, 20120760.	3.4	97
51	Quantitative assessment of collagen fibre orientations from two-dimensional images of soft biological tissues. Journal of the Royal Society Interface, 2012, 9, 3081-3093.	3.4	96
52	Computational stress-deformation analysis of arterial walls including high-pressure response. International Journal of Cardiology, 2007, 116, 78-85.	1.7	95
53	3D constitutive modeling of the biaxial mechanical response of intact and layer-dissected human carotid arteries. Journal of the Mechanical Behavior of Biomedical Materials, 2012, 5, 116-128.	3.1	95
54	On the tensionâ€“compression switch in soft fibrous solids. European Journal of Mechanics, A/Solids, 2015, 49, 561-569.	3.7	95

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55	Influence of myocardial fiber/sheet orientations on left ventricular mechanical contraction. Mathematics and Mechanics of Solids, 2013, 18, 592-606.	2.4	93
56	A model for saccular cerebral aneurysm growth by collagen fibre remodelling. Journal of Theoretical Biology, 2007, 247, 775-787.	1.7	92
57	A continuum model for remodeling in living structures. Journal of Materials Science, 2007, 42, 8811-8823.	3.7	88
58	Multiaxial mechanical properties and constitutive modeling of human adipose tissue: A basis for preoperative simulations in plastic and reconstructive surgery. Acta Biomaterialia, 2013, 9, 9036-9048.	8.3	88
59	A calcium-driven mechanochemical model for prediction of force generation in smooth muscle. Biomechanics and Modeling in Mechanobiology, 2010, 9, 749-762.	2.8	87
60	Smooth muscle contraction: Mechanochemical formulation for homogeneous finite strains. Progress in Biophysics and Molecular Biology, 2008, 96, 465-481.	2.9	85
61	A phase-field approach to model fracture of arterial walls: Theory and finite element analysis. Computer Methods in Applied Mechanics and Engineering, 2016, 312, 542-566.	6.6	80
62	A constitutive model for fibrous tissues considering collagen fiber crimp. International Journal of Non-Linear Mechanics, 2007, 42, 391-402.	2.6	77
63	Modeling Plaque Fissuring and Dissection during Balloon Angioplasty Intervention. Annals of Biomedical Engineering, 2007, 35, 711-723.	2.5	77
64	A hyperelastic biphasic fibre-reinforced model of articular cartilage considering distributed collagen fibre orientations: continuum basis, computational aspects and applications. Computer Methods in Biomechanics and Biomedical Engineering, 2013, 16, 1344-1361.	1.6	76
65	Human thoracic and abdominal aortic aneurysmal tissues: Damage experiments, statistical analysis and constitutive modeling. Journal of the Mechanical Behavior of Biomedical Materials, 2015, 41, 92-107.	3.1	76
66	The role of elastin and collagen in the softening behavior of the human thoracic aortic media. Journal of Biomechanics, 2013, 46, 1859-1865.	2.1	75
67	Mechanical strength of aneurysmatic and dissected human thoracic aortas at different shear loading modes. Journal of Biomechanics, 2016, 49, 2374-2382.	2.1	75
68	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.	2.1	74
69	A mechanochemical 3D continuum model for smooth muscle contraction under finite strains. Journal of Theoretical Biology, 2011, 268, 120-130.	1.7	73
70	Numerical aspects of anisotropic failure in soft biological tissues favor energy-based criteria: A rate-dependent anisotropic crack phase-field model. Computer Methods in Applied Mechanics and Engineering, 2018, 331, 23-52.	6.6	73
71	Experiments and mechanochemical modeling of smooth muscle contraction: Significance of filament overlap. Journal of Theoretical Biology, 2012, 297, 176-186.	1.7	72
72	Modelling the mechanical response of elastin for arterial tissue. Journal of Biomechanics, 2009, 42, 1320-1325.	2.1	70

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73	A Three-dimensional Finite Element Model for Arterial Clamping. Journal of Biomechanical Engineering, 2002, 124, 355-363.	1.3	69
74	A Numerical Model to Study the Interaction of Vascular Stents with Human Atherosclerotic Lesions. Annals of Biomedical Engineering, 2007, 35, 1857-1869.	2.5	64
75	Modeling the dispersion in electromechanically coupled myocardium. International Journal for Numerical Methods in Biomedical Engineering, 2013, 29, 1267-1284.	2.1	64
76	A method for incorporating three-dimensional residual stretches/stresses into patient-specific finite element simulations of arteries. Journal of the Mechanical Behavior of Biomedical Materials, 2015, 47, 147-164.	3.1	62
77	Quantification of Shear Deformations and Corresponding Stresses in the Biaxially Tested Human Myocardium. Annals of Biomedical Engineering, 2015, 43, 2334-2348.	2.5	61
78	On fibre dispersion modelling of soft biological tissues: a review. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2019, 475, 20180736.	2.1	61
79	Multiaxial mechanical response and constitutive modeling of esophageal tissues: Impact on esophageal tissue engineering. Acta Biomaterialia, 2013, 9, 9379-9391.	8.3	60
80	Selective enzymatic removal of elastin and collagen from human abdominal aortas: Uniaxial mechanical response and constitutive modeling. Acta Biomaterialia, 2015, 17, 125-136.	8.3	60
81	The role of tissue remodeling in mechanics and pathogenesis of abdominal aortic aneurysms. Acta Biomaterialia, 2019, 88, 149-161.	8.3	60
82	A new constitutive model for multi-layered collagenous tissues. Journal of Biomechanics, 2008, 41, 2766-2771.	2.1	59
83	An orthotropic viscoelastic model for the passive myocardium: continuum basis and numerical treatment. Computer Methods in Biomechanics and Biomedical Engineering, 2016, 19, 1647-1664.	1.6	59
84	Experimental Studies and Numerical Analysis of the Inflation and Interaction of Vascular Balloon Catheter-Stent Systems. Annals of Biomedical Engineering, 2009, 37, 315-330.	2.5	58
85	Finite Element Modeling of Balloon Angioplasty by Considering Overstretch of Remnant Non-diseased Tissues in Lesions. Computational Mechanics, 2007, 40, 47-60.	4.0	57
86	DT-MRI Based Computation of Collagen Fiber Deformation in Human Articular Cartilage: A Feasibility Study. Annals of Biomedical Engineering, 2010, 38, 2447-2463.	2.5	57
87	Gender Differences in Biomechanical Properties, Thrombus Age, Mass Fraction and Clinical Factors of Abdominal Aortic Aneurysms. European Journal of Vascular and Endovascular Surgery, 2013, 45, 364-372.	1.5	57
88	Stress softening and permanent deformation in human aortas: Continuum and computational modeling with application to arterial clamping. Journal of the Mechanical Behavior of Biomedical Materials, 2016, 61, 600-616.	3.1	57
89	Towards microstructure-informed material models for human brain tissue. Acta Biomaterialia, 2020, 104, 53-65.	8.3	57
90	Detection, segmentation, simulation and visualization of aortic dissections: A review. Medical Image Analysis, 2020, 65, 101773.	11.6	57

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91	A theoretical model for fibroblast-controlled growth of saccular cerebral aneurysms. Journal of Theoretical Biology, 2009, 257, 73-83.	1.7	56
92	A microstructurally based continuum model of cartilage viscoelasticity and permeability incorporating measured statistical fiber orientations. Biomechanics and Modeling in Mechanobiology, 2016, 15, 229-244.	2.8	55
93	A discrete fibre dispersion method for excluding fibres under compression in the modelling of fibrous tissues. Journal of the Royal Society Interface, 2018, 15, 20170766.	3.4	53
94	Constitutive modelling of arteries considering fibre recruitment and three-dimensional fibre distribution. Journal of the Royal Society Interface, 2015, 12, 20150111.	3.4	52
95	A Methodology to Analyze Changes in Lipid Core and Calcification Onto Fibrous Cap Vulnerability: The Human Atherosclerotic Carotid Bifurcation as an Illustratory Example. Journal of Biomechanical Engineering, 2009, 131, 121002.	1.3	50
96	Dissection Properties and Mechanical Strength of Tissue Components in Human Carotid Bifurcations. Annals of Biomedical Engineering, 2011, 39, 1703-1719.	2.5	49
97	A new approach to model cross-linked actin networks: Multi-scale continuum formulation and computational analysis. Journal of the Mechanical Behavior of Biomedical Materials, 2013, 22, 95-114.	3.1	49
98	Computational method for excluding fibers under compression in modeling soft fibrous solids. European Journal of Mechanics, A/Solids, 2016, 57, 178-193.	3.7	48
99	Structural Analysis of Articular Cartilage Using Multiphoton Microscopy: Input for Biomechanical Modeling. IEEE Transactions on Medical Imaging, 2011, 30, 1635-1648.	8.9	47
100	Biomechanical relevance of the microstructure in artery walls with a focus on passive and active components. American Journal of Physiology - Heart and Circulatory Physiology, 2018, 315, H540-H549.	3.2	45
101	A procedure to simulate coronary artery bypass graft surgery. Medical and Biological Engineering and Computing, 2007, 45, 819-827.	2.8	44
102	A Phenomenological Approach Toward Patient-Specific Computational Modeling of Articular Cartilage Including Collagen Fiber Tracking. Journal of Biomechanical Engineering, 2009, 131, 091006.	1.3	44
103	Compressibility and Anisotropy of the Ventricular Myocardium: Experimental Analysis and Microstructural Modeling. Journal of Biomechanical Engineering, 2018, 140, .	1.3	44
104	On Fiber Dispersion Models: Exclusion of Compressed Fibers and Spurious Model Comparisons. Journal of Elasticity, 2017, 129, 49-68.	1.9	43
105	A Thick-Walled Fluidâ€"Solid-Growth Model of Abdominal Aortic Aneurysm Evolution: Application to a Patient-Specific Geometry. Journal of Biomechanical Engineering, 2015, 137, .	1.3	41
106	Integration of polarized spatial frequency domain imaging (pSFDI) with a biaxial mechanical testing system for quantification of load-dependent collagen architecture in soft collagenous tissues. Acta Biomaterialia, 2020, 102, 149-168.	8.3	41
107	Estimation of the distributions of anisotropic, elastic properties and wall stresses of saccular cerebral aneurysms by inverse analysis. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2008, 464, 807-825.	2.1	40
108	A generalized prestressing algorithm for finite element simulations of preloaded geometries with application to the aorta. International Journal for Numerical Methods in Biomedical Engineering, 2014, 30, 857-872.	2.1	40

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109	Arterial clamping: Finite element simulation and in vivo validation. Journal of the Mechanical Behavior of Biomedical Materials, 2012, 12, 107-118.	3.1	39
110	Remodeling of Intramural Thrombus and Collagen in an Ang-II Infusion ApoEâ^'/â^' Model of Dissecting Aortic Aneurysms. Thrombosis Research, 2012, 130, e139-e146.	1.7	39
111	Modeling the porous and viscous responses of human brain tissue behavior. Computer Methods in Applied Mechanics and Engineering, 2020, 369, 113128.	6.6	39
112	Collagen in Arterial Walls: Biomechanical Aspects. , 2008, , 285-324.		38
113	Modeling of Saccular Aneurysm Growth in a Human Middle Cerebral Artery. Journal of Biomechanical Engineering, 2008, 130, 051012.	1.3	37
114	Statistical approach for a continuum description of damage evolution in soft collagenous tissues. Computer Methods in Applied Mechanics and Engineering, 2014, 278, 41-61.	6.6	37
115	Investigation of the optimal collagen fibre orientation in human iliac arteries. Journal of the Mechanical Behavior of Biomedical Materials, 2015, 52, 108-119.	3.1	37
116	Microstructural and mechanical characterization of the layers of human descending thoracic aortas. Acta Biomaterialia, 2021, 134, 401-421.	8.3	37
117	Computational modeling of progressive damage and rupture in fibrous biological tissues: application to aortic dissection. Biomechanics and Modeling in Mechanobiology, 2019, 18, 1607-1628.	2.8	36
118	Anisotropic residual stresses in arteries. Journal of the Royal Society Interface, 2019, 16, 20190029.	3.4	36
119	A phase-field model for fracture of unidirectional fiber-reinforced polymer matrix composites. Computational Mechanics, 2020, 65, 1149-1166.	4.0	36
120	Viscoelastic characterization of human descending thoracic aortas under cyclic load. Acta Biomaterialia, 2021, 130, 291-307.	8.3	36
121	An affine continuum mechanical model for cross-linked F-actin networks with compliant linker proteins. Journal of the Mechanical Behavior of Biomedical Materials, 2014, 38, 78-90.	3.1	35
122	Mechanical assessment of arterial dissection in health and disease: Advancements and challenges. Journal of Biomechanics, 2016, 49, 2366-2373.	2.1	35
123	On the quasi-incompressible finite element analysis of anisotropic hyperelastic materials. Computational Mechanics, 2019, 63, 443-453.	4.0	34
124	Multiscale modeling of fiber recruitment and damage with a discrete fiber dispersion method. Journal of the Mechanics and Physics of Solids, 2019, 126, 226-244.	4.8	33
125	On the Bending and Stretching Elasticity of Biopolymer Filaments. Journal of Elasticity, 2011, 104, 319-342.	1.9	32
126	An automatic nonrigid registration for stained histological sections. IEEE Transactions on Image Processing, 2005, 14, 475-486.	9.8	31

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127	Variations of dissection properties and mass fractions with thrombus age in human abdominal aortic aneurysms. Journal of Biomechanics, 2014, 47, 14-23.	2.1	31
128	A Mechanobiological model for damage-induced growth in arterial tissue with application to in-stent restenosis. Journal of the Mechanics and Physics of Solids, 2017, 101, 311-327.	4.8	31
129	Constrained mixture models as tools for testing competing hypotheses in arterial biomechanics: A brief survey. Mechanics Research Communications, 2012, 42, 126-133.	1.8	30
130	Predictive constitutive modelling of arteries by deep learning. Journal of the Royal Society Interface, 2021, 18, 20210411.	3.4	30
131	Viscoelasticity of cross-linked actin networks: Experimental tests, mechanical modeling and finite-element analysis. Acta Biomaterialia, 2013, 9, 7343-7353.	8.3	29
132	Modeling fibrous biological tissues with a general invariant that excludes compressed fibers. Journal of the Mechanics and Physics of Solids, 2018, 110, 38-53.	4.8	29
133	A finite element implementation of a growth and remodeling model for soft biological tissues: Verification and application to abdominal aortic aneurysms. Computer Methods in Applied Mechanics and Engineering, 2019, 352, 586-605.	6.6	29
134	An arterial constitutive model accounting for collagen content and cross-linking. Journal of the Mechanics and Physics of Solids, 2020, 136, 103682.	4.8	29
135	An efficient and accurate method for modeling nonlinear fractional viscoelastic biomaterials. Computer Methods in Applied Mechanics and Engineering, 2020, 362, 112834.	6.6	29
136	Structure, Mechanics, and Histology of Intraluminal Thrombi in Abdominal Aortic Aneurysms. Annals of Biomedical Engineering, 2015, 43, 1488-1501.	2.5	28
137	Constitutive modeling using structural information on collagen fiber direction and dispersion in human superficial femoral artery specimens of different ages. Acta Biomaterialia, 2021, 121, 461-474.	8.3	27
138	3-D reconstruction of tissue components for atherosclerotic human arteries using ex vivo high-resolution MRI. IEEE Transactions on Medical Imaging, 2006, 25, 345-357.	8.9	26
139	Investigating the role of smooth muscle cells in large elastic arteries: A finite element analysis. Journal of Theoretical Biology, 2014, 358, 1-10.	1.7	26
140	Comparison of two model frameworks for fiber dispersion in the elasticity of soft biological tissues. European Journal of Mechanics, A/Solids, 2017, 66, 193-200.	3.7	26
141	Failure properties and microstructure of healthy and aneurysmatic human thoracic aortas subjected to uniaxial extension with a focus on the media. Acta Biomaterialia, 2019, 99, 443-456.	8.3	26
142	Modeling the dispersion effects of contractile fibers in smooth muscles. Journal of the Mechanics and Physics of Solids, 2010, 58, 2065-2082.	4.8	25
143	Diameter-Related Variations of Geometrical, Mechanical, and Mass Fraction Data in the Anterior Portion of Abdominal Aortic Aneurysms. European Journal of Vascular and Endovascular Surgery, 2015, 49, 262-270.	1.5	25
144	An investigation of layer-specific tissue biomechanics of porcine atrioventricular valve anterior leaflets. Acta Biomaterialia, 2019, 96, 368-384.	8.3	24

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145	On the importance of modeling balloon folding, pleating, and stent crimping: An FE study comparing experimental inflation tests. International Journal for Numerical Methods in Biomedical Engineering, 2019, 35, e3249.	2.1	23
146	A viscoelastic model for human myocardium. Acta Biomaterialia, 2021, 135, 441-457.	8.3	23
147	Multiscale and Multiaxial Mechanics of Vascular Smooth Muscle. Biophysical Journal, 2017, 113, 714-727.	0.5	22
148	Structural and Numerical Models for the (Visco)elastic Response of Arterial Walls with Residual Stresses. , 2003, , 109-184.		22
149	Finite element analysis of abdominal aortic aneurysms: geometrical and structural reconstruction with application of an anisotropic material model. IMA Journal of Applied Mathematics, 2014, 79, 1011-1026.	1.6	21
150	Mechanical response of human subclavian and iliac arteries to extension, inflation and torsion. Acta Biomaterialia, 2018, 75, 235-252.	8.3	20
151	Role of smooth muscle activation in the static and dynamic mechanical characterization of human aortas. Proceedings of the National Academy of Sciences of the United States of America, 2022, 119, .	7.1	20
152	Multiscale numerical analyses of arterial tissue with embedded elements in the finite strain regime. Computer Methods in Applied Mechanics and Engineering, 2021, 381, 113844.	6.6	19
153	Advances in the mechanical modeling of filamentous actin andÂitsÂcross-linked networks on multiple scales. Biomechanics and Modeling in Mechanobiology, 2014, 13, 1155-1174.	2.8	18
154	An exponential constitutive model excluding fibres under compression: Application to extensionâ€“inflation of a residually stressed carotid artery. Mathematics and Mechanics of Solids, 2018, 23, 1206-1224.	2.4	18
155	Rate-dependency of the mechanical behaviour of semilunar heart valves under biaxial deformation. Acta Biomaterialia, 2019, 88, 120-130.	8.3	18
156	A discrete approach for modeling degraded elastic fibers in aortic dissection. Computer Methods in Applied Mechanics and Engineering, 2021, 373, 113511.	6.6	18
157	Classical and allâ€floating FETI methods for the simulation of arterial tissues. International Journal for Numerical Methods in Engineering, 2014, 99, 290-312.	2.8	17
158	Biomechanical characterization of a chronic type a dissected human aorta. Journal of Biomechanics, 2020, 110, 109978.	2.1	17
159	Methods to compute 3D residual stress distributions in hyperelastic tubes with application to arterial walls. International Journal of Engineering Science, 2010, 48, 1066-1082.	5.0	16
160	An investigation of the glycosaminoglycan contribution to biaxial mechanical behaviours of porcine atrioventricular heart valve leaflets. Journal of the Royal Society Interface, 2019, 16, 20190069.	3.4	16
161	A pilot <i>in silico</i> modelingâ€based study of the pathological effects on the biomechanical function of tricuspid valves. International Journal for Numerical Methods in Biomedical Engineering, 2020, 36, e3346.	2.1	16
162	Elasticity of biopolymer filaments. Acta Biomaterialia, 2013, 9, 7320-7325.	8.3	15

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163	A pilot study on biaxial mechanical, collagen microstructural, and morphological characterizations of a resected human intracranial aneurysm tissue. Scientific Reports, 2021, 11, 3525.	3.3	15
164	The influence of fiber dispersion on the mechanical response of aortic tissues in health and disease: a computational study. Computer Methods in Biomechanics and Biomedical Engineering, 2018, 21, 99-112.	1.6	14
165	Differences in Collagen Fiber Diameter and Waviness between Healthy and Aneurysmal Abdominal Aortas. Microscopy and Microanalysis, 2022, 28, 1649-1663.	0.4	14
166	Biochemomechanics of the thoracic aorta in health and disease. Progress in Biomedical Engineering, 2020, 2, 032002.	4.9	13
167	The effects of viscoelasticity on residual strain in aortic soft tissues. Acta Biomaterialia, 2022, 140, 398-411.	8.3	13
168	On the thermodynamics of smooth muscle contraction. Journal of the Mechanics and Physics of Solids, 2016, 94, 490-503.	4.8	12
169	Length adaptation of smooth muscle contractile filaments in response to sustained activation. Journal of Theoretical Biology, 2016, 397, 13-21.	1.7	12
170	Modeling of Damage in Soft Biological Tissues. , 2017, , 101-123.		11
171	Micromechanically-motivated analysis of fibrous tissue. Journal of the Mechanical Behavior of Biomedical Materials, 2019, 96, 69-78.	3.1	11
172	Biomechanics of mitral valve leaflets: Second harmonic generation microscopy, biaxial mechanical tests and tissue modeling. Acta Biomaterialia, 2022, 141, 244-254.	8.3	11
173	Quantifying stent-induced damage in coronary arteries by investigating mechanical and structural alterations. Acta Biomaterialia, 2020, 116, 285-301.	8.3	10
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