Jeffrey W Holmes

List of Publications by Year
in descending order

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103
papers

5,148
citations

117619
34
h-index

98792
67
g-index

109
all docs

109
docs citations

109
times ranked

6250
citing authors

#	Article	IF	Citations
1	Mechanical load initiates hypertrophic scar formation through decreased cellular apoptosis. FASEB Journal, 2007, 21, 3250-3261.	0.5	422
2	Guidelines for experimental models of myocardial ischemia and infarction. American Journal of Physiology - Heart and Circulatory Physiology, 2018, 314, H812-H838.	3.2	372
3	Structure and Mechanics of Healing Myocardial Infarcts. Annual Review of Biomedical Engineering, 2005, 7, 223-253.	12.3	339
4	Chronic Unloading by Left Ventricular Assist Device Reverses Contractile Dysfunction and Alters Gene Expression in End-Stage Heart Failure. Circulation, 2000, 102, 2713-2719.	1.6	268
5	Advanced Tools for Tissue Engineering: Scaffolds, Bioreactors, and Signaling. Tissue Engineering, 2006, 12, 3285-3305.	4.6	255
6	Contribution of extracellular matrix to the mechanical properties of the heart. Journal of Molecular and Cellular Cardiology, 2010, 48, 490-496.	1.9	200
7	Physiological Implications of Myocardial Scar Structure. , 2015, 5, 1877-1909.		198
8	Evolution of scar structure, mechanics, and ventricular function after myocardial infarction in the rat. American Journal of Physiology - Heart and Circulatory Physiology, 2010, 298, H221-H228.	3.2	195
9	Identification of a novel mitochondrial uncoupler that does not depolarize the plasma membrane. Molecular Metabolism, 2014, 3, 114-123.	6.5	168
10	Creating Alignment and Anisotropy in Engineered Heart Tissue: Role of Boundary Conditions in a Model Three-Dimensional Culture System. Tissue Engineering, 2003, 9, 567-577.	4.6	147
11	Impact of Mechanical Activation, Scar, and Electrical Timing on Cardiac Resynchronization Therapy Response and Clinical Outcomes. Journal of the American College of Cardiology, 2014, 63, 1657-1666.	2.8	123
12	Regional mechanics determine collagen fiber structure in healing myocardial infarcts. Journal of Molecular and Cellular Cardiology, 2012, 52, 1083-1090.	1.9	106
13	Theoretical Quality Assessment of Myocardial Elastography with In Vivo Validation. IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, 2007, 54, 2233-2245.	3.0	104
14	The Development of Structural and Mechanical Anisotropy in Fibroblast Populated Collagen Gels. Journal of Biomechanical Engineering, 2005, 127, 742-750.	1.3	101
15	Segmentation of real-time three-dimensional ultrasound for quantification of ventricular function: A clinical study on right and left ventricles. Ultrasound in Medicine and Biology, 2005, 31, 1143-1158.	1.5	96
16	Left ventricular assist device support normalizes left and right ventricular beta-adrenergic pathway properties. Journal of the American College of Cardiology, 2005, 45, 668-676.	2.8	92
17	Role of boundary conditions in determining cell alignment in response to stretch. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, 986-991.	7.1	91
18	Mechanical regulation of fibroblast migration and collagen remodelling in healing myocardial infarcts. Journal of Physiology, 2012, 590, 4585-4602.	2.9	70

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19	Tissue Engineering of Skeletal Muscle. Tissue Engineering, 2007, 13, 2781-2790.	4.6	69
20	Modifying the mechanics of healing infarcts: Is better the enemy of good?. Journal of Molecular and Cellular Cardiology, 2016, 93, 115-124.	1.9	67
21	Remodeling of Engineered Tissue Anisotropy in Response to Altered Loading Conditions. Annals of Biomedical Engineering, 2008, 36, 1322-1334.	2.5	66
22	Mechanical Strain Alters Gene Expression in an in Vitro Model of Hypertrophic Scarring. Annals of Plastic Surgery, 2005, 55, 69-75.	0.9	64
23	Computational modeling of cardiac fibroblasts and fibrosis. Journal of Molecular and Cellular Cardiology, 2016, 93, 73-83.	1.9	63
24	Model-Based Design of Mechanical Therapies for Myocardial Infarction. Journal of Cardiovascular Translational Research, 2011, 4, 82-91.	2.4	62
25	Left ventricular assist device-induced reverse ventricular remodeling. Progress in Cardiovascular Diseases, 2000, 43, 19-26.	3.1	55
26	Collagen Fiber Alignment Does Not Explain Mechanical Anisotropy in Fibroblast Populated Collagen Gels. Journal of Biomechanical Engineering, 2007, 129, 642-650.	1.3	55
27	Coupled agent-based and finite-element models for predicting scar structure following myocardial infarction. Progress in Biophysics and Molecular Biology, 2014, 115, 235-243.	2.9	50
28	Crossing Into the Next Frontier of Cardiac Extracellular Matrix Research. Circulation Research, 2016, 119, 1040-1045.	4.5	50
29	Anisotropic Reinforcement of Acute Anteroapical Infarcts Improves Pump Function. Circulation: Heart Failure, 2012, 5, 515-522.	3.9	48
30	Structural and mechanical factors influencing infarct scar collagen organization. American Journal of Physiology - Heart and Circulatory Physiology, 2000, 278, H194-H200.	3.2	47
31	Region-Based Endocardium Tracking on Real-Time Three-Dimensional Ultrasound. Ultrasound in Medicine and Biology, 2009, 35, 256-265.	1.5	47
32	Candidate mechanical stimuli for hypertrophy during volume overload. Journal of Applied Physiology, 2004, 97, 1453-1460.	2.5	46
33	Parameterization of Left Ventricular Wall Motion for Detection of Regional Ischemia. Annals of Biomedical Engineering, 2005, 33, 912-919.	2.5	43
34	Structural Mechanism for Alteration of Collagen Gel Mechanics by Glutaraldehyde Crosslinking. Connective Tissue Research, 2012, 53, 285-297.	2.3	41
35	A Comparison of Phenomenologic Growth Laws for Myocardial Hypertrophy. Journal of Elasticity, 2017, 129, 257-281.	1.9	40
36	Teaching from classic papers: Hill's model of muscle contraction. American Journal of Physiology - Advances in Physiology Education, 2006, 30, 67-72.	1.6	35

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37	Predicting the Time Course of Ventricular Dilation and Thickening Using a Rapid Compartmental Model. Journal of Cardiovascular Translational Research, 2018, 11, 109-122.	2.4	33
38	Normalized Diastolic Properties After Left Ventricular Assist Result From Reverse Remodeling of Chamber Geometry. Circulation, 2001, 104, I-229-I-232.	1.6	32
39	Isometric contraction induces rapid myocyte remodeling in cultured rat right ventricular papillary muscles. American Journal of Physiology - Heart and Circulatory Physiology, 2007, 293, H3707-H3712.	3.2	31
40	Strains at the myotendinous junction predicted by a micromechanical model. Journal of Biomechanics, 2011, 44, 2795-2801.	2.1	31
41	Computational model predicts paracrine and intracellular drivers of fibroblast phenotype after myocardial infarction. Matrix Biology, 2020, 91-92, 136-151.	3.6	31
42	Emergence of Collagen Orientation Heterogeneity in Healing Infarcts and an Agent-Based Model. Biophysical Journal, 2016, 110, 2266-2277.	0.5	30
43	Imaging leftâ€ventricular mechanical activation in heart failure patients using cine DENSE MRI: Validation and implications for cardiac resynchronization therapy. Journal of Magnetic Resonance Imaging, 2017, 46, 887-896.	3.4	30
44	Multiscale Coupling of an Agent-Based Model of Tissue Fibrosis and a Logic-Based Model of Intracellular Signaling. Frontiers in Physiology, 2019, 10, 1481.	2.8	29
45	Making better scar: Emerging approaches for modifying mechanical and electrical properties following infarction and ablation. Progress in Biophysics and Molecular Biology, 2016, 120, 134-148.	2.9	28
46	Nitrite-Induced Cross-Linking Alters Remodeling and Mechanical Properties of Collagenous Engineered Tissues. Connective Tissue Research, 2006, 47, 163-176.	2.3	27
47	Mechanics of cell growth. Mechanics Research Communications, 2012, 42, 118-125.	1.8	23
48	Mechanical Boundary Conditions Bias Fibroblast Invasion in a Collagen-Fibrin Wound Model. Biophysical Journal, 2014, 106, 932-943.	0.5	23
49	Why Is Infarct Expansion Such an Elusive Therapeutic Target?. Journal of Cardiovascular Translational Research, 2015, 8, 421-430.	2.4	23
50	Spatial scaling in multiscale models: methods for coupling agent-based and finite-element models of wound healing. Biomechanics and Modeling in Mechanobiology, 2019, 18, 1297-1309.	2.8	21
51	Variable outcomes of human heart attack recapitulated in genetically diverse mice. Npj Regenerative Medicine, 2019, 4, 5.	5.2	20
52	Multiscale computational model of Achilles tendon wound healing: Untangling the effects of repair and loading. PLoS Computational Biology, 2018, 14, e1006652.	3.2	19
53	A multiscale model of cardiac concentric hypertrophy incorporating both mechanical and hormonal drivers of growth. Biomechanics and Modeling in Mechanobiology, 2021, 20, 293-307.	2.8	19
54	Computational models of cardiac hypertrophy. Progress in Biophysics and Molecular Biology, 2021, 159, 75-85.	2.9	18

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55	Energetics of the Frank-Starling effect in rabbit myocardium: economy and efficiency depend on muscle length. American Journal of Physiology - Heart and Circulatory Physiology, 2002, 283, H324-H330.	3.2	17
56	Network modelâ€based screen for FDAâ€approved drugs affecting cardiac fibrosis. CPT: Pharmacometrics and Systems Pharmacology, 2021, 10, 377-388.	2.5	16
57	Regional functional depression immediately after ventricular septal defect closure. Journal of the American Society of Echocardiography, 2004, 17, 1066-1072.	2.8	15
58	Dynamic Cardiac Information From Optical Flow Using Four Dimensional Ultrasound. , 2005, 2005, 4465-8.		15
59	The connexin 43 carboxyl terminal mimetic peptide Î±CT1 prompts differentiation of a collagen scar matrix in humans resembling unwounded skin. FASEB Journal, 2021, 35, e21762.	0.5	15
60	Changes in Global and Regional Mechanics Due to Atrial Fibrillation: Insights from a Coupled Finite-Element and Circulation Model. Annals of Biomedical Engineering, 2015, 43, 1600-1613.	2.5	14
61	Cardiac Magnetic Resonance Assessment of Response to Cardiac Resynchronization Therapy and Programming Strategies. JACC: Cardiovascular Imaging, 2021, 14, 2369-2383.	5.3	14
62	The Impact of Hemodynamic Reflex Compensation Following Myocardial Infarction on Subsequent Ventricular Remodeling. Journal of Biomechanical Engineering, 2019, 141, .	1.3	14
63	Longitudinal Reinforcement of Acute Myocardial Infarcts Improves Function by Transmurally Redistributing Stretch and Stress. Journal of Biomechanical Engineering, 2020, 142, .	1.3	14
64	Effect of Scar Compaction on the Therapeutic Efficacy of Anisotropic Reinforcement Following Myocardial Infarction in the Dog. Journal of Cardiovascular Translational Research, 2015, 8, 353-361.	2.4	13
65	Effect of ablation pattern on mechanical function in the atrium. PACE - Pacing and Clinical Electrophysiology, 2017, 40, 648-654.	1.2	13
66	Surgical reinforcement alters collagen alignment and turnover in healing myocardial infarcts. American Journal of Physiology - Heart and Circulatory Physiology, 2018, 315, H1041-H1050.	3.2	13
67	Enhanced Regional Deformation at the Anterior Papillary Muscle Insertion Site After Chordal Transsection. Circulation, 1996, 93, 585-593.	1.6	13
68	Determinants of Left Ventricular Shape Change During Filling. Journal of Biomechanical Engineering, 2004, 126, 98-103.	1.3	12
69	Effects of stretch and shortening on gene expression in intact myocardium. Physiological Genomics, 2014, 46, 57-65.	2.3	12
70	Clinical Applications of Patient-Specific Models: The Case for a Simple Approach. Journal of Cardiovascular Translational Research, 2018, 11, 71-79.	2.4	12
71	Potential strain-dependent mechanisms defining matrix alignment in healing tendons. Biomechanics and Modeling in Mechanobiology, 2018, 17, 1569-1580.	2.8	12
72	Implications of scar structure and mechanics for post-infarction cardiac repair and regeneration. Experimental Cell Research, 2019, 376, 98-103.	2.6	12

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73	Coronary Occlusion Detection with 4D Optical Flow Based Strain Estimation on 4D Ultrasound. Lecture Notes in Computer Science, 2009, , 211-219.	1.3	11
74	Quantitative Three-Dimensional Wall Motion Analysis Predicts Ischemic Region Size and Location. Annals of Biomedical Engineering, 2010, 38, 1367-1376.	2.5	9
75	Mechano-chemo signaling interactions modulate matrix production by cardiac fibroblasts. Matrix Biology Plus, 2021, 10, 100055.	3.5	9
76	Wall-Motion Based Analysis of Global and Regional Left Atrial Mechanics. IEEE Transactions on Medical Imaging, 2013, 32, 1765-1776.	8.9	8
77	Effect of passive cardiac containment on ventricular synchrony and cardiac function in awake dogs. European Journal of Cardio-thoracic Surgery, 2007, 31, 55-64.	1.4	7
78	Comparison of Quantitative Wallâ€Motion Analysis and Strain for Detection of Coronary Stenosis with Threeâ€Dimensional Dobutamine Stress Echocardiography. Echocardiography, 2015, 32, 349-360.	0.9	7
79	Predictions of hypertrophy and its regression in response to pressure overload. Biomechanics and Modeling in Mechanobiology, 2020, 19, 1079-1089.	2.8	7
80	A rapid electromechanical model to predict reverse remodeling following cardiac resynchronization therapy. Biomechanics and Modeling in Mechanobiology, 2022, 21, 231-247.	2.8	7
81	Imaging Cardiac Mechanics: What Information Do We Need to Extract from Cardiac Images?. , 2006, 2006, 1545-7.		6
82	Cardiac Restraint and Support Following Myocardial Infarction. Studies in Mechanobiology, Tissue Engineering and Biomaterials, 2013, , 169-206.	1.0	6
83	Postprocedure Mapping of Cardiac Resynchronization Lead Position Using Standard Fluoroscopy Systems: Implications for the Nonresponder with Scar. PACE - Pacing and Clinical Electrophysiology, 2014, 37, 757-767.	1.2	6
84	A microscopically motivated model for the remodeling of cardiomyocytes. Biomechanics and Modeling in Mechanobiology, 2019, 18, 1233-1245.	2.8	6
85	Machine learning for multidimensional response and survival after cardiac resynchronization therapy using features from cardiac magnetic resonance. Heart Rhythm O2, 2022, 3, 542-552.	1.7	6
86	Trajectory of right ventricular indices is an early predictor of outcomes in hypoplastic left heart syndrome. Congenital Heart Disease, 2019, 14, 1185-1192.	0.2	5
87	Individual variability in animal-specific hemodynamic compensation following myocardial infarction. Journal of Molecular and Cellular Cardiology, 2022, 163, 156-166.	1.9	5
88	Multiscale model of heart growth during pregnancy: integrating mechanical and hormonal signaling. Biomechanics and Modeling in Mechanobiology, 2022, 21, 1267-1283.	2.8	5
89	Model First and Ask Questions Later: Confessions of a Reformed Experimentalist. Journal of Biomechanical Engineering, 2019, 141, .	1.3	4
90	Model-based development of four-dimensional wall motion measures. Computer Methods in Applied Mechanics and Engineering, 2007, 196, 3061-3069.	6.6	3

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91	A Comparison of Fiber Based Material Laws for Myocardial Scar. Journal of Elasticity, 2021, 145, 321-337.	1.9	3
92	Biomechanics of Myocardial Ischemia and Infarction. Studies in Mechanobiology, Tissue Engineering and Biomaterials, 2017, , 233-269.	1.0	2
93	Normalized Diastolic Properties After Left Ventricular Assist Result From Reverse Remodeling of Chamber Geometry. Circulation, 2001, 104, .	1.6	2
94	Open-Source Routines for Building Personalized Left Ventricular Models From Cardiac Magnetic Resonance Imaging Data. Journal of Biomechanical Engineering, 2020, 142, .	1.3	2
95	Level set-based tracking of the endocardium without a shape prior from 3D ultrasound images. , 2012, , .		1
96	Do Infarcts Really Expand or Compact? Relationship Between Changing Material Properties and Apparent Infarct Remodeling. , 2013, , .		1
97	The influence of boundary conditions and protein availability on the remodeling of cardiomyocytes. Biomechanics and Modeling in Mechanobiology, 2021, , .	2.8	1
98	Model-Based Screening of Wall Motion Measures for Detection of Ischemia in Three-Dimensional Cardiac Images. , 2006, 2006, 628-31.		0
99	Cardiovascular solid mechanics grows and remodels. Journal of Biomechanics, 2012, 45, 727.	2.1	0
100	An Ultrasound-Driven Kinematic Model for Deformation of the Infarcted Mouse Left Ventricle Incorporating a Near-Incompressibility Constraint. Ultrasound in Medicine and Biology, 2015, 41, 532-541.	1.5	0
101	Fibroblasts migrate faster in the direction of applied tension in a collagenâ€fibrin wound model. FASEB Journal, 2010, 24, 599.8.	0.5	0
102	Title is missing!. , 2018, , .		0
103	Model-Based Screening of Wall Motion Measures for Detection of Ischemia in Three-Dimensional Cardiac Images. Annual International Conference of the IEEE Engineering in Medicine and Biology Society, 2006, , .	0.5	0