Jeffrey W Holmes

List of Publications by Citations

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The third column is the impact factor (IF) of the journal, and the fourth column is the number of citations of the article.

97 papers	3,914 citations	33 h-index	61 g-index
109 ext. papers	4,633 ext. citations	4.6 avg, IF	5.55 L-index

#	Paper	IF	Citations
97	Mechanical load initiates hypertrophic scar formation through decreased cellular apoptosis. *FASEB Journal*, **2007**, 21, 3250-61	0.9	348
96	Structure and mechanics of healing myocardial infarcts. *Annual Review of Biomedical Engineering*, **2005**, 7, 223-53	12	286
95	Guidelines for experimental models of myocardial ischemia and infarction. *American Journal of Physiology - Heart and Circulatory Physiology*, **2018**, 314, H812-H838	5.2	249
94	Chronic unloading by left ventricular assist device reverses contractile dysfunction and alters gene expression in end-stage heart failure. *Circulation*, **2000**, 102, 2713-9	16.7	237
93	Advanced tools for tissue engineering: scaffolds, bioreactors, and signaling. *Tissue Engineering*, **2006**, 12, 3285-305		223
92	Contribution of extracellular matrix to the mechanical properties of the heart. *Journal of Molecular and Cellular Cardiology*, **2010**, 48, 490-6	5.8	163
91	Evolution of scar structure, mechanics, and ventricular function after myocardial infarction in the rat. *American Journal of Physiology - Heart and Circulatory Physiology*, **2010**, 298, H221-8	5.2	150
90	Creating alignment and anisotropy in engineered heart tissue: role of boundary conditions in a model three-dimensional culture system. *Tissue Engineering*, **2003**, 9, 567-77		135
89	Identification of a novel mitochondrial uncoupler that does not depolarize the plasma membrane. *Molecular Metabolism*, **2014**, 3, 114-23	8.8	118
88	Physiological Implications of Myocardial Scar Structure. *Comprehensive Physiology*, **2015**, 5, 1877-909	7.7	115
87	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, 1657-66	15.1	94
86	The development of structural and mechanical anisotropy in fibroblast populated collagen gels. *Journal of Biomechanical Engineering*, **2005**, 127, 742-50	2.1	91
85	Regional mechanics determine collagen fiber structure in healing myocardial infarcts. *Journal of Molecular and Cellular Cardiology*, **2012**, 52, 1083-90	5.8	80
84	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, 1143-58	3.5	80
83	Theoretical quality assessment of myocardial elastography with in vivo validation. *IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control*, **2007**, 54, 2233-45	3.2	78
82	Left ventricular assist device support normalizes left and right ventricular beta-adrenergic pathway properties. *Journal of the American College of Cardiology*, **2005**, 45, 668-76	15.1	73
81	Tissue engineering of skeletal muscle. *Tissue Engineering*, **2007**, 13, 2781-90		63

80	Remodeling of engineered tissue anisotropy in response to altered loading conditions. *Annals of Biomedical Engineering*, **2008**, 36, 1322-34	4.7	57
79	Mechanical regulation of fibroblast migration and collagen remodelling in healing myocardial infarcts. *Journal of Physiology*, **2012**, 590, 4585-602	3.9	55
78	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	11.5	54
77	Left ventricular assist device-induced reverse ventricular remodeling. *Progress in Cardiovascular Diseases*, **2000**, 43, 19-26	8.5	53
76	Model-based design of mechanical therapies for myocardial infarction. *Journal of Cardiovascular Translational Research*, **2011**, 4, 82-91	3.3	52
75	Mechanical strain alters gene expression in an in vitro model of hypertrophic scarring. *Annals of Plastic Surgery*, **2005**, 55, 69-75; discussion 75	1.7	51
74	Collagen fiber alignment does not explain mechanical anisotropy in fibroblast populated collagen gels. *Journal of Biomechanical Engineering*, **2007**, 129, 642-50	2.1	48
73	Modifying the mechanics of healing infarcts: Is better the enemy of good?. *Journal of Molecular and Cellular Cardiology*, **2016**, 93, 115-24	5.8	47
72	Anisotropic reinforcement of acute anteroapical infarcts improves pump function. *Circulation: Heart Failure*, **2012**, 5, 515-22	7.6	41
71	Candidate mechanical stimuli for hypertrophy during volume overload. *Journal of Applied Physiology*, **2004**, 97, 1453-60	3.7	41
70	Region-based endocardium tracking on real-time three-dimensional ultrasound. *Ultrasound in Medicine and Biology*, **2009**, 35, 256-65	3.5	40
69	Structural and mechanical factors influencing infarct scar collagen organization. *American Journal of Physiology - Heart and Circulatory Physiology*, **2000**, 278, H194-200	5.2	39
68	Coupled agent-based and finite-element models for predicting scar structure following myocardial infarction. *Progress in Biophysics and Molecular Biology*, **2014**, 115, 235-43	4.7	37
67	Parameterization of left ventricular wall motion for detection of regional ischemia. *Annals of Biomedical Engineering*, **2005**, 33, 912-9	4.7	37
66	Computational modeling of cardiac fibroblasts and fibrosis. *Journal of Molecular and Cellular Cardiology*, **2016**, 93, 73-83	5.8	33
65	Structural mechanism for alteration of collagen gel mechanics by glutaraldehyde crosslinking. *Connective Tissue Research*, **2012**, 53, 285-97	3.3	32
64	A Comparison of Phenomenologic Growth Laws for Myocardial Hypertrophy. *Journal of Elasticity*, **2017**, 129, 257-281	1.5	30
63	Normalized diastolic properties after left ventricular assist result from reverse remodeling of chamber geometry. *Circulation*, **2001**, 104, I229-32	16.7	30

62	Strains at the myotendinous junction predicted by a micromechanical model. *Journal of Biomechanics*, **2011**, 44, 2795-801	2.9	26
61	Isometric contraction induces rapid myocyte remodeling in cultured rat right ventricular papillary muscles. *American Journal of Physiology - Heart and Circulatory Physiology*, **2007**, 293, H3707-12	5.2	26
60	Making better scar: Emerging approaches for modifying mechanical and electrical properties following infarction and ablation. *Progress in Biophysics and Molecular Biology*, **2016**, 120, 134-48	4.7	25
59	Nitrite-induced cross-linking alters remodeling and mechanical properties of collagenous engineered tissues. *Connective Tissue Research*, **2006**, 47, 163-76	3.3	22
58	Mechanical boundary conditions bias fibroblast invasion in a collagen-fibrin wound model. *Biophysical Journal*, **2014**, 106, 932-43	2.9	20
57	Teaching from classic papers: Hill's model of muscle contraction. *American Journal of Physiology - Advances in Physiology Education*, **2006**, 30, 67-72	1.9	20
56	Predicting the Time Course of Ventricular Dilation and Thickening Using a Rapid Compartmental Model. *Journal of Cardiovascular Translational Research*, **2018**, 11, 109-122	3.3	18
55	Emergence of Collagen Orientation Heterogeneity in Healing Infarcts and an Agent-Based Model. *Biophysical Journal*, **2016**, 110, 2266-77	2.9	18
54	Why Is Infarct Expansion Such an Elusive Therapeutic Target?. *Journal of Cardiovascular Translational Research*, **2015**, 8, 421-30	3.3	17
53	Mechanics of Cell Growth. *Mechanics Research Communications*, **2012**, 42, 118-125	2.2	17
52	Computational model predicts paracrine and intracellular drivers of fibroblast phenotype after myocardial infarction. *Matrix Biology*, **2020**, 91-92, 136-151	11.4	15
51	Imaging left-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	5.6	14
50	Effect of Scar Compaction on the Therapeutic Efficacy of Anisotropic Reinforcement Following Myocardial Infarction in the Dog. *Journal of Cardiovascular Translational Research*, **2015**, 8, 353-61	3.3	13
49	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, H324-30	5.2	13
48	Regional functional depression immediately after ventricular septal defect closure. *Journal of the American Society of Echocardiography*, **2004**, 17, 1066-72	5.8	12
47	Multiscale Coupling of an Agent-Based Model of Tissue Fibrosis and a Logic-Based Model of Intracellular Signaling. *Frontiers in Physiology*, **2019**, 10, 1481	4.6	12
46	Multiscale computational model of Achilles tendon wound healing: Untangling the effects of repair and loading. *PLoS Computational Biology*, **2018**, 14, e1006652	5	12
45	Variable outcomes of human heart attack recapitulated in genetically diverse mice. *Npj Regenerative Medicine*, **2019**, 4, 5	15.8	11

44	Potential strain-dependent mechanisms defining matrix alignment in healing tendons. *Biomechanics and Modeling in Mechanobiology*, **2018**, 17, 1569-1580	3.8	11
43	Effects of stretch and shortening on gene expression in intact myocardium. *Physiological Genomics*, **2014**, 46, 57-65	3.6	11
42	Determinants of left ventricular shape change during filling. *Journal of Biomechanical Engineering*, **2004**, 126, 98-103	2.1	11
41	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, 1600-13	4.7	10
40	Enhanced regional deformation at the anterior papillary muscle insertion site after chordal transsection. *Circulation*, **1996**, 93, 585-93	16.7	10
39	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	3.8	9
38	Effect of ablation pattern on mechanical function in the atrium. *PACE - Pacing and Clinical Electrophysiology*, **2017**, 40, 648-654	1.6	8
37	Surgical reinforcement alters collagen alignment and turnover in healing myocardial infarcts. *American Journal of Physiology - Heart and Circulatory Physiology*, **2018**, 315, H1041-H1050	5.2	8
36	Quantitative three-dimensional wall motion analysis predicts ischemic region size and location. *Annals of Biomedical Engineering*, **2010**, 38, 1367-76	4.7	8
35	Implications of scar structure and mechanics for post-infarction cardiac repair and regeneration. *Experimental Cell Research*, **2019**, 376, 98-103	4.2	8
34	Effect of passive cardiac containment on ventricular synchrony and cardiac function in awake dogs. *European Journal of Cardio-thoracic Surgery*, **2007**, 31, 55-64	3	7
33	A multiscale model of cardiac concentric hypertrophy incorporating both mechanical and hormonal drivers of growth. *Biomechanics and Modeling in Mechanobiology*, **2021**, 20, 293-307	3.8	7
32	Comparison of quantitative wall-motion analysis and strain for detection of coronary stenosis with three-dimensional dobutamine stress echocardiography. *Echocardiography*, **2015**, 32, 349-60	1.5	6
31	Wall-motion based analysis of global and regional left atrial mechanics. *IEEE Transactions on Medical Imaging*, **2013**, 32, 1765-76	11.7	6
30	Coronary Occlusion Detection with 4D Optical Flow Based Strain Estimation on 4D Ultrasound. *Lecture Notes in Computer Science*, **2009**, 211-219	0.9	6
29	Computational models of cardiac hypertrophy. *Progress in Biophysics and Molecular Biology*, **2021**, 159, 75-85	4.7	6
28	Imaging cardiac mechanics: what information do we need to extract from cardiac images?. *Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, **2006**, 2006, 1545-7		5
27	Longitudinal Reinforcement of Acute Myocardial Infarcts Improves Function by Transmurally Redistributing Stretch and Stress. *Journal of Biomechanical Engineering*, **2020**, 142,	2.1	5

26	Mechano-chemo signaling interactions modulate matrix production by cardiac fibroblasts. *Matrix Biology Plus*, **2021**, 10, 100055	5.1	5
25	Model First and Ask Questions Later: Confessions of a Reformed Experimentalist. *Journal of Biomechanical Engineering*, **2019**,	2.1	4
24	A microscopically motivated model for the remodeling of cardiomyocytes. *Biomechanics and Modeling in Mechanobiology*, **2019**, 18, 1233-1245	3.8	4
23	Postprocedure mapping of cardiac resynchronization lead position using standard fluoroscopy systems: implications for the nonresponder with scar. *PACE - Pacing and Clinical Electrophysiology*, **2014**, 37, 757-67	1.6	4
22	Cardiac Restraint and Support Following Myocardial Infarction. *Studies in Mechanobiology, Tissue Engineering and Biomaterials*, **2013**, 169-206	0.5	4
21	Dynamic cardiac information from optical flow using four dimensional ultrasound. *Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, **2005**, 2005, 4465-8		4
20	The Impact of Hemodynamic Reflex Compensation Following Myocardial Infarction on Subsequent Ventricular Remodeling. *Journal of Biomechanical Engineering*, **2019**,	2.1	4
19	Predictions of hypertrophy and its regression in response to pressure overload. *Biomechanics and Modeling in Mechanobiology*, **2020**, 19, 1079-1089	3.8	4
18	Trajectory of right ventricular indices is an early predictor of outcomes in hypoplastic left heart syndrome. *Congenital Heart Disease*, **2019**, 14, 1185-1192	3.1	3
17	The connexin 43 carboxyl terminal mimetic peptide ☐CT1 prompts differentiation of a collagen scar matrix in humans resembling unwounded skin. *FASEB Journal*, **2021**, 35, e21762	0.9	3
16	Model-based development of four-dimensional wall motion measures. *Computer Methods in Applied Mechanics and Engineering*, **2007**, 196, 3061-3069	5.7	2
15	Normalized Diastolic Properties After Left Ventricular Assist Result From Reverse Remodeling of Chamber Geometry. *Circulation*, **2001**, 104,	16.7	2
14	The Connexin 43 Carboxyl Terminal Mimetic Peptide ☐CT1 Prompts Differentiation of a Collagen Scar Matrix Resembling Unwounded Skin		2
13	Open-Source Routines for Building Personalized Left Ventricular Models From Cardiac Magnetic Resonance Imaging Data. *Journal of Biomechanical Engineering*, **2020**, 142,	2.1	1
12	Individual variability in animal-specific hemodynamic compensation following myocardial infarction. *Journal of Molecular and Cellular Cardiology*, **2021**, 163, 156-166	5.8	1
11	Mechano-Chemo Signaling Interactions Modulate Matrix Production by Cardiac Fibroblasts		1
10	Multiscale model of heart growth during pregnancy: Integrating mechanical and hormonal signaling		1
9	Network model-based screen for FDA-approved drugs affecting cardiac fibrosis. *CPT: Pharmacometrics and Systems Pharmacology*, **2021**, 10, 377-388	4.5	1

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8	Cardiac Magnetic Resonance Assessment of Response to Cardiac Resynchronization Therapy and Programming Strategies. *JACC: Cardiovascular Imaging*, **2021**, 14, 2369-2383	8.4	1
7	A rapid electromechanical model to predict reverse remodeling following cardiac resynchronization therapy. *Biomechanics and Modeling in Mechanobiology*, **2021**, 1	3.8	0
6	A Comparison of Fiber Based Material Laws for Myocardial Scar.. *Journal of Elasticity*, **2021**, 145, 321-337	1.5	0
5	Biomechanics of Myocardial Ischemia and Infarction. *Studies in Mechanobiology, Tissue Engineering and Biomaterials*, **2017**, 233-269	0.5	
4	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, 532-41	3.5	
3	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**, 2006, 628-31		
2	A Comparison of Phenomenologic Growth Laws for Myocardial Hypertrophy **2018**, 257-281		
1	Fibroblasts migrate faster in the direction of applied tension in a collagen-fibrin wound model. *FASEB Journal*, **2010**, 24, 599.8	0.9	