Mark B Ratcliffe

List of Publications by Year
in descending order

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70	2,140	218662	233409
papers	citations	26 h-index	45 g-index

73	73	73	1791
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	MRI-based finite-element analysis of left ventricular aneurysm. American Journal of Physiology - Heart and Circulatory Physiology, 2005, 289, H692-H700.	3.2	179
2	Large animal model of left ventricular aneurysm. Annals of Thoracic Surgery, 1989, 48, 838-845.	1.3	155
3	Large animal model of ischemic mitral regurgitation. Annals of Thoracic Surgery, 1994, 57, 432-439.	1.3	152
4	Mechanism underlying mechanical dysfunction in the border zone of left ventricular aneurysm: a finite element model study. Annals of Thoracic Surgery, 2001, 71, 654-662.	1.3	133
5	First Finite Element Model of the Left Ventricle With Mitral Valve: Insights Into Ischemic Mitral Regurgitation. Annals of Thoracic Surgery, 2010, 89, 1546-1553.	1.3	109
6	A Computationally Efficient Formal Optimization of Regional Myocardial Contractility in a Sheep With Left Ventricular Aneurysm. Journal of Biomechanical Engineering, 2009, 131, 111001.	1.3	73
7	Magnetic resonance imaging-based finite element stress analysis after linear repair of left ventricular aneurysm. Journal of Thoracic and Cardiovascular Surgery, 2008, 135, 1094-1102.e2.	0.8	68
8	A Novel Method for Quantifying the In-Vivo Mechanical Effect of Material Injected Into a Myocardial Infarction. Annals of Thoracic Surgery, 2011, 92, 935-941.	1.3	64
9	Effect of Ventricular Size and Patch Stiffness in Surgical Anterior Ventricular Restoration: A Finite Element Model Study. Annals of Thoracic Surgery, 2005, 79, 185-193.	1.3	62
10	Fluidâ€“structure interactions of the mitral valve and left heart: Comprehensive strategies, past, present and future. International Journal for Numerical Methods in Biomedical Engineering, 2010, 26, 348-380.	2.1	58
11	Regional Left Ventricular Myocardial Contractility and Stress in a Finite Element Model of Posterobasal Myocardial Infarction. Journal of Biomechanical Engineering, 2011, 133, 044501.	1.3	54
12	The Effect of Mitral Annuloplasty Shape in Ischemic Mitral Regurgitation: A Finite Element Simulation. Annals of Thoracic Surgery, 2012, 93, 776-782.	1.3	51
13	Comparison of the Young-Laplace Law and Finite Element Based Calculation of Ventricular Wall Stress: Implications for Postinfarct and Surgical Ventricular Remodeling. Annals of Thoracic Surgery, 2011, 91, 150-156.	1.3	43
14	Residual stress produced by ventricular volume reduction surgery has little effect on ventricular function and mechanics: A finite element model study. Journal of Thoracic and Cardiovascular Surgery, 2001, 122, 592-599.	0.8	42
15	National Institutes of Health funding for cardiothoracic surgical research. Journal of Thoracic and Cardiovascular Surgery, 2008, 136, 392-397.	0.8	41
16	Applications of Computational Modeling in Cardiac Surgery. Journal of Cardiac Surgery, 2014, 29, 293-302.	0.7	38
17	Patient-specific finite element modeling of the Cardiokinetix ParachuteÂ® device: effects on left ventricular wall stress and function. Medical and Biological Engineering and Computing, 2014, 52, 557-566.	2.8	38
18	Repair of left ventricular aneurysm. Journal of Thoracic and Cardiovascular Surgery, 1992, 104, 752-762.	0.8	36

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19	Electromechanical feedback with reduced cellular connectivity alters electrical activity in an infarct injured left ventricle: a finite element model study. American Journal of Physiology - Heart and Circulatory Physiology, 2012, 302, H206-H214.	3.2	35
20	Akinetic myocardial infarcts must contain contracting myocytes: finite-element model study. American Journal of Physiology - Heart and Circulatory Physiology, 2005, 288, H1844-H1850.	3.2	34
21	Patient-Specific Finite Elementâ€“Based Analysis of Ventricular Myofiber Stress After Coapsys: Importance of Residual Stress. Annals of Thoracic Surgery, 2012, 93, 1964-1971.	1.3	34
22	Right Ventricular Dysfunction Impairs Effort Tolerance Independent of Left Ventricular Function Among Patients Undergoing Exercise Stress Myocardial Perfusion Imaging. Circulation: Cardiovascular Imaging, 2016, 9, .	2.6	30
23	Dor procedure for dyskinetic anteroapical myocardial infarction fails to improve contractility in the border zone. Journal of Thoracic and Cardiovascular Surgery, 2010, 140, 233-239.e4.	0.8	27
24	Left Ventricular Myocardial Contractility Is Depressed in the Borderzone After Posterolateral Myocardial Infarction. Annals of Thoracic Surgery, 2013, 95, 1619-1625.	1.3	27
25	Left ventricular volume and function after endoventricular patch plasty for dyskinetic anteroapical left ventricular aneurysm in sheep. Journal of Thoracic and Cardiovascular Surgery, 2005, 130, 1032-1038.	0.8	26
26	A coupled biventricular finite element and lumped-parameter circulatory system model of heart failure. Computer Methods in Biomechanics and Biomedical Engineering, 2013, 16, 807-818.	1.6	26
27	Moderate Mitral Regurgitation Accelerates Left Ventricular Remodeling After Posterolateral Myocardial Infarction. Annals of Thoracic Surgery, 2011, 92, 1614-1620.	1.3	25
28	Endoventricular patch plasty for dyskinetic anteroapical left ventricular aneurysm increases systolic circumferential shortening in sheep. Journal of Thoracic and Cardiovascular Surgery, 2007, 134, 1017-1024.e1.	0.8	23
29	A Novel Method for Quantifying In-Vivo Regional Left Ventricular Myocardial Contractility in the Border Zone of a Myocardial Infarction. Journal of Biomechanical Engineering, 2011, 133, 094506.	1.3	23
30	A N-terminal truncated intracellular isoform of matrix metalloproteinase-2 impairs contractility of mouse myocardium. Frontiers in Physiology, 2014, 5, 363.	2.8	23
31	Biventricular Finite Element Modeling of the Acorn CorCap Cardiac Support Device on a Failing Heart. Annals of Thoracic Surgery, 2013, 95, 2022-2027.	1.3	22
32	Effect of Adjustable Passive Constraint on the Failing Left Ventricle: A Finite-Element Model Study. Annals of Thoracic Surgery, 2010, 89, 132-137.	1.3	21
33	Measurement of Mitral Leaflet and Annular Geometry and Stress After Repair of Posterior Leaflet Prolapse: Virtual Repair Using aÂPatient-Specific Finite Element Simulation. Annals of Thoracic Surgery, 2014, 97, 1496-1503.	1.3	19
34	Mechanical effects of MitraClip on leaflet stress and myocardial strain in functional mitral regurgitation â€“ A finite element modeling study. PLoS ONE, 2019, 14, e0223472.	2.5	19
35	Finite element modeling of mitral leaflet tissue using a layered shell approximation. Medical and Biological Engineering and Computing, 2012, 50, 1071-1079.	2.8	18
36	Myofilament dysfunction contributes to impaired myocardial contraction in the infarct border zone. American Journal of Physiology - Heart and Circulatory Physiology, 2014, 307, H1150-H1158.	3.2	17

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37	Finite Element Modeling of Mitral Valve Repair. Journal of Biomechanical Engineering, 2016, 138, 021009.	1.3	16
38	Myocardial injection of a thermoresponsive hydrogel with reactive oxygen species scavenger properties improves border zone contractility. Journal of Biomedical Materials Research - Part A, 2020, 108, 1736-1746.	4.0	16
39	Adaptive generation of multimaterial grids from imaging data for biomedical Lagrangian fluidâ€“structure simulations. Biomechanics and Modeling in Mechanobiology, 2010, 9, 187-201.	2.8	15
40	Association of Uneven MitraClip Application and Leaflet Stress in a Finite Element Model. JAMA Surgery, 2017, 152, 111.	4.3	13
41	Short term doxycycline treatment induces sustained improvement in myocardial infarction border zone contractility. PLoS ONE, 2018, 13, e0192720.	2.5	13
42	Ischemia-Mediated Dysfunction in Subpapillary Myocardium as a Marker of Functional Mitral Regurgitation. JACC: Cardiovascular Imaging, 2021, 14, 826-839.	5.3	13
43	Ischemic Mitral Regurgitation: Abnormal Strain Overestimates Nonviable Myocardium. Annals of Thoracic Surgery, 2018, 105, 1754-1761.	1.3	12
44	Finite-element based optimization of left ventricular passive stiffness in normal volunteers and patients after myocardial infarction: Utility of an inverse deformation gradient calculation of regional diastolic strain. Journal of the Mechanical Behavior of Biomedical Materials, 2021, 119, 104431.	3.1	12
45	The Benefit of Enhanced Contractility in the Infarct Borderzone: A Virtual Experiment. Frontiers in Physiology, 2012, 3, 86.	2.8	11
46	Neochord placement versus triangular resection in mitral valve repair: A finite element model. Journal of Surgical Research, 2016, 206, 98-105.	1.6	11
47	Moderate Ischemic Mitral Regurgitation After Posterolateral Myocardial Infarction in Sheep Alters Left Ventricular Shear but Not Normal Strain in the Infarct and Infarct Borderzone. Annals of Thoracic Surgery, 2016, 101, 1691-1699.	1.3	10
48	Echocardiographyâ€quantified myocardial strainâ€”a marker of global and regional infarct size that stratifies likelihood of left ventricular thrombus. Echocardiography, 2017, 34, 1623-1632.	0.9	10
49	Left ventricular geometry predicts optimal response to percutaneous mitral repair via MitraClip: Integrated assessment by twoâ€and threeâ€dimensional echocardiography. Catheterization and Cardiovascular Interventions, 2019, 93, 1152-1160.	1.7	10
50	A Novel MRI-Based Finite Element Modeling Method for Calculation of Myocardial Ischemia Effect in Patients With Functional Mitral Regurgitation. Frontiers in Physiology, 2020, 11, 158.	2.8	9
51	Transcatheter MitraClip repair alters mitral annular geometry â€“ device induced annular remodeling on three-dimensional echocardiography predicts therapeutic response. Cardiovascular Ultrasound, 2019, 17, 31.	1.6	8
52	Tissue-based markers of right ventricular dysfunction in ischemic mitral regurgitation assessed via stress cardiac magnetic resonance and three-dimensional echocardiography. International Journal of Cardiovascular Imaging, 2019, 35, 683-693.	1.5	8
53	Posterior Papillary Muscle Anchoring Affects Remote Myofiber Stress and Pump Function: Finite Element Analysis. Annals of Thoracic Surgery, 2014, 98, 1355-1362.	1.3	7
54	Undersized Mitral Annuloplasty Increases Strain in the Proximal Lateral Left Ventricular Wall. Annals of Thoracic Surgery, 2017, 103, 820-827.	1.3	7

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55	Residual Stress Impairs Pump Function After Surgical Ventricular Remodeling: A Finite Element Analysis. Annals of Thoracic Surgery, 2015, 100, 2198-2205.	1.3	4
56	A finite element model of the cardiac ventricles with coupled circulation: Biventricular mesh generation with hexahedral elements, airbags and a functional mockup interface to the circulation. Computers in Biology and Medicine, 2021, 137, 104840.	7.0	4
57	Effect of mitral annuloplasty device shape and size on leaflet and myofiber stress following repair of posterior leaflet prolapse: a patient-specific finite element simulation. Journal of Heart Valve Disease, 2014, 23, 727-34.	0.5	4
58	Left ventricular geometry during unloading and the end-systolic pressure volume relationship: Measurement with a modified real-time MRI-based method in normal sheep. PLoS ONE, 2020, 15, e0234896.	2.5	3
59	Invited commentary. Annals of Thoracic Surgery, 2007, 84, 101-102.	1.3	2
60	All Roads Lead to Rome: Diverse Etiologies of Tricuspid Regurgitation Create a Predictable Constellation of Right Ventricular Shape Changes. Frontiers in Physiology, 2022, 13, .	2.8	2
61	Left Ventricular Pressure Gating in Ovine Cardiac Studies: A Software-Based Method. Journal of Biomechanical Engineering, 2013, 135, 34502.	1.3	1
62	Studies on Postinfarct Left Ventricular Remodeling: State of the Art. Annals of Thoracic Surgery, 2015, 99, 755-756.	1.3	1
63	Right Ventricular Shape Distortion in Tricuspid Regurgitation. , 2020, 47, .		1
64	Progressive design concepts in off-pump left ventricular remodeling mitral valve repair devices. Annals of Cardiothoracic Surgery, 2015, 4, 352-4.	1.7	1
65	A Biventricular Finite Element Model of Heart Failure for Predicting the Effects of Treatment Strategies. , 2011, , .		0
66	Invited Commentary. Annals of Thoracic Surgery, 2013, 95, 162.	1.3	0
67	Invited Commentary. Annals of Thoracic Surgery, 2014, 97, 1524-1525.	1.3	0
68	Invited Commentary. Annals of Thoracic Surgery, 2014, 97, 907-908.	1.3	0
69	A kinematic modelâ€based analysis framework for 3D Cineâ€DENSEâ€”validation with an axially compressed gel phantom and application in sheep before and after anteroâ€apical myocardial infarction. Magnetic Resonance in Medicine, 2021, 86, 2105-2121.	3.0	0
70	Ventricular Wall Stress and Pump Function of Ventricular Septal Defect of Congenital Heart Defects. , 2009, , .		0