Frank J H Gijsen

List of Publications by Year
in descending order

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Version: 2024-02-01

95 papers	3,792 citations	126858 33 h-index	138417 58 g-index
97 all docs	97 docs citations	97 times ranked	4212 citing authors

#	ARTICLE	IF	CITATIONS
1	Endothelial shear stress in the evolution of coronary atherosclerotic plaque and vascular remodelling: current understanding and remaining questions. Cardiovascular Research, 2012, 96, 234-243.	1.8	257
2	Plaque Rupture in the Carotid Artery Is Localized at the High Shear Stress Region. Stroke, 2007, 38, 2379-2381.	1.0	212
3	Large variations in absolute wall shear stress levels within one species and between species. Atherosclerosis, 2007, 195, 225-235.	0.4	190
4	Expert recommendations on the assessment of wall shear stress in human coronary arteries: existing methodologies, technical considerations, and clinical applications. European Heart Journal, 2019, 40, 3421-3433.	1.0	178
5	Strain distribution over plaques in human coronary arteries relates to shear stress. American Journal of Physiology - Heart and Circulatory Physiology, 2008, 295, H1608-H1614.	1.5	176
6	The influence of boundary conditions on wall shear stress distribution in patients specific coronary trees. Journal of Biomechanics, 2011, 44, 1089-1095.	0.9	116
7	Shear stress, vascular remodeling and neointimal formation. Journal of Biomechanics, 2003, 36, 681-688.	0.9	113
8	The effects of stenting on shear stress: relevance to endothelial injury and repair. Cardiovascular Research, 2013, 99, 269-275.	1.8	103
9	Simulation of stent deployment in a realistic human coronary artery. BioMedical Engineering OnLine, 2008, 7, 23.	1.3	99
10	Augmentation of Wall Shear Stress Inhibits Neointimal Hyperplasia After Stent Implantation. Circulation, 2003, 107, 2741-2746.	1.6	98
11	Vulnerable plaques and patients: state-of-the-art. European Heart Journal, 2020, 41, 2997-3004.	1.0	98
12	Mechanical properties of human atherosclerotic intima tissue. Journal of Biomechanics, 2014, 47, 773-783.	0.9	87
13	Biomechanical Modeling to Improve Coronary Artery Bifurcation Stenting. JACC: Cardiovascular Interventions, 2015, 8, 1281-1296.	1.1	84
14	A new imaging technique to study 3-D plaque and shear stress distribution in human coronary artery bifurcations in vivo. Journal of Biomechanics, 2007, 40, 2349-2357.	0.9	83
15	Shear stress and advanced atherosclerosis in human coronary arteries. Journal of Biomechanics, 2013, 46, 240-247.	0.9	82
16	Usefulness of shear stress pattern in predicting neointima distribution in sirolimus-eluting stents in coronary arteries. American Journal of Cardiology, 2003, 92, 1325-1328.	0.7	80
17	Local axial compressive mechanical properties of human carotid atherosclerotic plaquesâ€"characterisation by indentation test and inverse finite element analysis. Journal of Biomechanics, 2013, 46, 1759-1766.	0.9	75
18	In vivo validation of CAAS QCAâ€3D coronary reconstruction using fusion of angiography and intravascular ultrasound (ANGUS). Catheterization and Cardiovascular Interventions, 2009, 73, 620-626.	0.7	70

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19	Plaque and shear stress distribution in human coronary bifurcations: a multislice computed tomography study. EuroIntervention, 2009, 4, 654-661.	1.4	70
20	3D fusion of intravascular ultrasound and coronary computed tomography for in-vivo wall shear stress analysis: a feasibility study. International Journal of Cardiovascular Imaging, 2010, 26, 781-796.	0.7	69
21	Detection and quantification of coronary atherosclerotic plaque by 64-slice multidetector CT: A systematic head-to-head comparison with intravascular ultrasound. Atherosclerosis, 2011, 219, 163-170.	0.4	67
22	Multidirectional wall shear stress promotes advanced coronary plaque development: comparing five shear stress metrics. Cardiovascular Research, 2020, 116, 1136-1146.	1.8	66
23	Rapamycin modulates the eNOS vs. shear stress relationship. Cardiovascular Research, 2008, 78, 123-129.	1.8	61
24	Calcifications in atherosclerotic plaques and impact on plaque biomechanics. Journal of Biomechanics, 2019, 87, 1-12.	0.9	61
25	Reproducibility, Accuracy, and Predictors of Accuracy for the Detection of Coronary Atherosclerotic Plaque Composition by Computed Tomography. Investigative Radiology, 2010, 45, 693-701.	3.5	53
26	Focal In-Stent Restenosis Near Step-Up. Circulation, 2002, 105, e185-7.	1.6	48
27	3D Fiber Orientation in Atherosclerotic Carotid Plaques. Journal of Structural Biology, 2017, 200, 28-35.	1.3	44
28	3D reconstruction techniques of human coronary bifurcations for shear stress computations. Journal of Biomechanics, 2014, 47, 39-43.	0.9	39
29	Mechanical Characterization of Thrombi Retrieved With Endovascular Thrombectomy in Patients With Acute Ischemic Stroke. Stroke, 2021, 52, 2510-2517.	1.0	39
30	High shear stress induces a strain increase in human coronary plaques over a 6-month period. EuroIntervention, 2011, 7, 121-127.	1.4	39
31	4-D Echo-Particle Image Velocimetry in a Left Ventricular Phantom. Ultrasound in Medicine and Biology, 2020, 46, 805-817.	0.7	38
32	In vivo assessment of the relationship between shear stress and necrotic core in early and advanced coronary artery disease. EuroIntervention, 2013, 9, 989-995.	1.4	36
33	Differences in Neointimal Thickness Between the Adluminal and the Abluminal Sides of Malapposed and Side-Branch Struts in a Polylactide Bioresorbable Scaffold. JACC: Cardiovascular Interventions, 2012, 5, 428-435.	1.1	34
34	Endothelial shear stress 5 years after implantation of a coronary bioresorbable scaffold. European Heart Journal, 2018, 39, 1602-1609.	1.0	33
35	Geometry guided data averaging enables the interpretation of shear stress related plaque development in human coronary arteries. Journal of Biomechanics, 2005, 38, 1551-1555.	0.9	32
36	Flow Patterns in Carotid Webs: A Patient-Based Computational Fluid Dynamics Study. American Journal of Neuroradiology, 2019, 40, 703-708.	1.2	31

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37	In Vivo 3D Distribution of Lipid-Core Plaque in Human Coronary Artery as Assessed by Fusion of Near Infrared Spectroscopyâ€“Intravascular Ultrasound and Multislice Computed Tomography Scan. Circulation: Cardiovascular Imaging, 2010, 3, e6-7.	1.3	29
38	Contemporary rationale for non-invasive imaging of adverse coronary plaque features to identify the vulnerable patient:Âa Position Paper from the European Society of Cardiology Working Group on Atherosclerosis and Vascular Biology and the European Association of Cardiovascular Imaging. European Heart Journal Cardiovascular Imaging, 2020, 21, 1177-1183.	0.5	29
39	Three-dimensional registration of histology of human atherosclerotic carotid plaques to in-vivo imaging. Journal of Biomechanics, 2010, 43, 2087-2092.	0.9	28
40	Tomographic PIV in a model of the left ventricle: 3D flow past biological and mechanical heart valves. Journal of Biomechanics, 2019, 90, 40-49.	0.9	28
41	Small coronary calcifications are not detectable by 64-slice contrast enhanced computed tomography. International Journal of Cardiovascular Imaging, 2011, 27, 143-152.	0.7	27
42	Lipid signature of advanced human carotid atherosclerosis assessed by mass spectrometry imaging. Journal of Lipid Research, 2021, 62, 100020.	2.0	27
43	Animal models for plaque rupture: a biomechanical assessment. Thrombosis and Haemostasis, 2016, 115, 501-508.	1.8	25
44	The first virtual patient-specific thrombectomy procedure. Journal of Biomechanics, 2021, 126, 110622.	0.9	25
45	The effects of plaque morphology and material properties on peak cap stress in human coronary arteries. Computer Methods in Biomechanics and Biomedical Engineering, 2016, 19, 771-779.	0.9	23
46	Coronary fractional flow reserve measurements of a stenosed side branch: a computational study investigating the influence of the bifurcation angle. BioMedical Engineering OnLine, 2016, 15, 91.	1.3	22
47	Local anisotropic mechanical properties of human carotid atherosclerotic plaques â€“ Characterisation by micro-indentation and inverse finite element analysis. Journal of the Mechanical Behavior of Biomedical Materials, 2015, 43, 59-68.	1.5	21
48	Contour segmentation of the intima, media, and adventitia layers in intracoronary OCT images: application to fully automatic detection of healthy wall regions. International Journal of Computer Assisted Radiology and Surgery, 2017, 12, 1923-1936.	1.7	21
49	High Frame Rate Ultrasound Particle Image Velocimetry for Estimating High Velocity Flow Patterns in the Left Ventricle. IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, 2018, 65, 2222-2232.	1.7	21
50	Carotid Plaque Morphological Classification Compared With Biomechanical Cap Stress. Stroke, 2015, 46, 2124-2128.	1.0	20
51	Intraventricular blood flow with a fully dynamic mitral valve model. Computers in Biology and Medicine, 2019, 104, 197-204.	3.9	20
52	Identification of the haemodynamic environment permissive for plaque erosion. Scientific Reports, 2021, 11, 7253.	1.6	20
53	Peak cap stress calculations in coronary atherosclerotic plaques with an incomplete necrotic core geometry. BioMedical Engineering OnLine, 2016, 15, 48.	1.3	18
54	High-Frame-Rate Contrast-enhanced US Particle Image Velocimetry in the Abdominal Aorta: First Human Results. Radiology, 2018, 289, 119-125.	3.6	18

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55	High-Frame-Rate Contrast-Enhanced Ultrasound for Velocimetry in the Human Abdominal Aorta. IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, 2018, 65, 2245-2254.	1.7	18
56	Influence of the Accuracy of Angiography-Based Reconstructions on Velocity and Wall Shear Stress Computations in Coronary Bifurcations: A Phantom Study. PLoS ONE, 2015, 10, e0145114.	1.1	16
57	Intima heterogeneity in stress assessment of atherosclerotic plaques. Interface Focus, 2018, 8, 20170008.	1.5	16
58	In vitro and in silico modeling of endovascular stroke treatments for acute ischemic stroke. Journal of Biomechanics, 2021, 127, 110693.	0.9	16
59	A Framework for Local Mechanical Characterization of Atherosclerotic Plaques: Combination of Ultrasound Displacement Imaging and Inverse Finite Element Analysis. Annals of Biomedical Engineering, 2016, 44, 968-979.	1.3	15
60	Virtual physiological human 2016: translating the virtual physiological human to the clinic. Interface Focus, 2018, 8, 20170067.	1.5	15
61	Functional and anatomical measures for outflow boundary conditions in atherosclerotic coronary bifurcations. Journal of Biomechanics, 2016, 49, 2127-2134.	0.9	14
62	Plaque mechanics. Journal of Biomechanics, 2014, 47, 763-764.	0.9	13
63	Contrast-enhanced micro-CT imaging in murine carotid arteries: a new protocol for computing wall shear stress. BioMedical Engineering OnLine, 2016, 15, 156.	1.3	13
64	Morphometric and Mechanical Analyses of Calcifications and Fibrous Plaque Tissue in Carotid Arteries for Plaque Rupture Risk Assessment. IEEE Transactions on Biomedical Engineering, 2021, 68, 1429-1438.	2.5	13
65	The definition of low wall shear stress and its effect on plaque progression estimation in human coronary arteries. Scientific Reports, 2021, 11, 22086.	1.6	13
66	Fast and Accurate Pressure-Drop Prediction in Straightened Atherosclerotic Coronary Arteries. Annals of Biomedical Engineering, 2015, 43, 59-67.	1.3	12
67	Influence of catheter design on lumen wall temperature distribution in intracoronary thermography. Journal of Biomechanics, 2007, 40, 281-288.	0.9	11
68	Numerical simulations of carotid MRI quantify the accuracy in measuring atherosclerotic plaque components in vivo. Magnetic Resonance in Medicine, 2014, 72, 188-201.	1.9	11
69	A review on the association of thrombus composition with mechanical and radiological imaging characteristics in acute ischemic stroke. Journal of Biomechanics, 2021, 129, 110816.	0.9	11
70	The influence of shear stress on in-stent restenosis and thrombosis. EuroIntervention, 2008, 4 Suppl C, C27-32.	1.4	11
71	The impact of scaled boundary conditions on wall shear stress computations in atherosclerotic human coronary bifurcations. American Journal of Physiology - Heart and Circulatory Physiology, 2016, 310, H1304-H1312.	1.5	10
72	Lipid-rich Plaques Detected by Near-infrared Spectroscopy Are More Frequently Exposed to High Shear Stress. Journal of Cardiovascular Translational Research, 2021, 14, 416-425.	1.1	10

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73	Call for Standards in Technical Documentation of Intracoronary Stents. Herz, 2010, 35, 27-33.	0.4	9
74	Multicomponent material property characterization of atherosclerotic human carotid arteries through a Bayesian Optimization based inverse finite element approach. Journal of the Mechanical Behavior of Biomedical Materials, 2022, 126, 104996.	1.5	7
75	The Influence of Inaccuracies in Carotid MRI Segmentation on Atherosclerotic Plaque Stress Computations. Journal of Biomechanical Engineering, 2014, 136, 021015.	0.6	6
76	A Computer-Simulation Study on the Effects of MRI Voxel Dimensions on Carotid Plaque Lipid-Core and Fibrous Cap Segmentation and Stress Modeling. PLoS ONE, 2015, 10, e0123031.	1.1	6
77	Fusion of fibrous cap thickness and wall shear stress to assess plaque vulnerability in coronary arteries: a pilot study. International Journal of Computer Assisted Radiology and Surgery, 2016, 11, 1779-1790.	1.7	6
78	Five-year follow-up of underexpanded and overexpanded bioresorbable scaffolds: self-correction and impact on shear stress. EuroIntervention, 2017, 12, 2158-2159.	1.4	6
79	Cardiovascular diseases and vulnerable plaques: data, modeling, predictions and clinical applications. BioMedical Engineering OnLine, 2015, 14, S1.	1.3	5
80	Imaging of inflammatory cellular protagonists in human atherosclerosis: a dual-isotope SPECT approach. European Journal of Nuclear Medicine and Molecular Imaging, 2020, 47, 2856-2865.	3.3	5
81	Impact of bioresorbable scaffold design characteristics on local haemodynamic forces: an ex vivo assessment with computational fluid dynamics simulations. EuroIntervention, 2020, 16, e930-e937.	1.4	5
82	Intracoronary thermography: heat generation, transfer and detection. EuroIntervention, 2005, 1, 105-14.	1.4	4
83	Endothelial shear stress and vascular remodeling in bioresorbable scaffold and metallic stent. Atherosclerosis, 2020, 312, 79-89.	0.4	3
84	The Association Between Time-Varying Wall Shear Stress and the Development of Plaque Ulcerations in Carotid Arteries From the Plaque at Risk Study. Frontiers in Cardiovascular Medicine, 2021, 8, 732646.	1.1	3
85	Model-based cap thickness and peak cap stress prediction for carotid MRI. Journal of Biomechanics, 2017, 60, 175-180.	0.9	2
86	Location of Plaque Ulceration in Human Coronary Arteries is Related to Shear Stress. , 2010, , .		1
87	The Influence of Shear Stress on Restenosis. , 2007, , 59-83.		1
88	Atherosclerotic plaque fibrous cap assessment under an oblique scan plane orientation in carotid MRI. Quantitative Imaging in Medicine and Surgery, 2014, 4, 216-24.	1.1	1
89	An in silico trials platform for the evaluation of effect of the arterial anatomy configuration on stent implantation*. , 2021, 2021, 4213-4217.		1
90	Can We Use In Vivo MRI and FEA to Determine Peak Cap Stress in Carotid Plaques? MRI Simulations Provide Answers. , 2013, , .		0

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91	Local Anisotropic Mechanical Behavior of Human Carotid Atherosclerotic Plaques: Characterization Using Indentation Test and Inverse Finite Element Analysis. , 2013, , .		0
92	P33â€ƒNRF2-MEDIATED UPREGULATION OF OSGIN1 AND OSGIN2 TRIGGERS CELL DETACHMENT THROUGH DYSREGULATED AUTOPHAGY â€“ A POTENTIAL MECHANISM FOR ENDOTHELIAL EROSION OVERLYING STENOTIC PLAQUES. Cardiovascular Research, 2018, 114, S10-S10.	1.8	0
93	CT Angiography-Derived Fractional Flow Reserve. Contemporary Medical Imaging, 2019, , 767-776.	0.3	0
94	Biomechanical Determinants of Plaque Rupture. , 2010, , .		0
95	Thrombus mechanics: How can we contribute to improve diagnostics and treatment?. Journal of Biomechanics, 2022, 132, 110935.	0.9	0