Rami Rami K Korhonen

List of Publications by Year
in descending order

119 papers	3,131 citations	212478 28 h-index	223390 49 g-index
126 all docs	126 docs citations	126 times ranked	2474 citing authors

#	Article	IF	Citations
1	Dualâ€contrast microâ€CT enables cartilage lesion detection and tissue condition evaluation ex vivo. Equine Veterinary Journal, 2023, 55, 315-324.	0.9	5
2	Shear strain and inflammationâ€induced fixed charge density loss in the knee joint cartilage following ACL injury and reconstruction: A computational study. Journal of Orthopaedic Research, 2022, 40, 1505-1522.	1.2	8
3	Subjectâ€specific biomechanical analysis to estimate locations susceptible to osteoarthritisâ€"Finite element modeling and MRI followâ€up of ACL reconstructed patients. Journal of Orthopaedic Research, 2022, 40, 1744-1755.	1.2	8
4	In vivo assessment of the passive stretching response of the bicompartmental human semitendinosus muscle using shear-wave elastography. Journal of Applied Physiology, 2022, 132, 438-447.	1.2	6
5	Changes in subchondral bone structure and mechanical properties do not substantially affect cartilage mechanical responses â€" A finite element study. Journal of the Mechanical Behavior of Biomedical Materials, 2022, 128, 105129.	1.5	4
6	Effect of osteoporosis-related reduction in the mechanical properties of bone on the acetabular fracture during a sideways fall: A parametric finite element approach. PLoS ONE, 2022, 17, e0263458.	1.1	3
7	Toward Tailored Rehabilitation by Implementation of a Novel Musculoskeletal Finite Element Analysis Pipeline. IEEE Transactions on Neural Systems and Rehabilitation Engineering, 2022, 30, 789-802.	2.7	5
8	An EMG-Assisted Muscle-Force Driven Finite Element Analysis Pipeline to Investigate Joint- and Tissue-Level Mechanical Responses in Functional Activities: Towards a Rapid Assessment Toolbox. IEEE Transactions on Biomedical Engineering, 2022, 69, 2860-2871.	2.5	13
9	Near infrared spectroscopic evaluation of biochemical and crimp properties of knee joint ligaments and patellar tendon. PLoS ONE, 2022, 17, e0263280.	1.1	2
10	Rapid X-Ray-Based 3-D Finite Element Modeling of Medial Knee Joint Cartilage Biomechanics During Walking. Annals of Biomedical Engineering, 2022, 50, 666-679.	1.3	5
11	Effect of cells on spatial quantification of proteoglycans in articular cartilage of small animals. Connective Tissue Research, 2022, 63, 603-614.	1.1	1
12	Deformation behaviors and mechanical impairments of tissue cracks in immature and mature cartilages. Journal of Orthopaedic Research, 2022, 40, 2103-2112.	1.2	4
13	Crack propagation in articular cartilage under cyclic loading using cohesive finite element modeling. Journal of the Mechanical Behavior of Biomedical Materials, 2022, 131, 105227.	1.5	4
14	A musculoskeletal finite element model of rat knee joint for evaluating cartilage biomechanics during gait. PLoS Computational Biology, 2022, 18, e1009398.	1.5	7
15	Site- and Zone-Dependent Changes in Proteoglycan Content and Biomechanical Properties of Bluntly and Sharply Grooved Equine Articular Cartilage. Annals of Biomedical Engineering, 2022, 50, 1787-1797.	1.3	1
16	Prediction of local fixed charge density loss in cartilage following ACL injury and reconstruction: A computational proofâ€ofâ€concept study with MRI followâ€up. Journal of Orthopaedic Research, 2021, 39, 1064-1081.	1.2	28
17	The effect of body configuration on the strain magnitude and distribution within the acetabulum during sideways falls: A finite element approach. Journal of Biomechanics, 2021, 114, 110156.	0.9	3
18	12 Degrees of Freedom Muscle Force Driven Fibril-Reinforced Poroviscoelastic Finite Element Model of the Knee Joint. IEEE Transactions on Neural Systems and Rehabilitation Engineering, 2021, 29, 123-133.	2.7	15

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19	Discrete element and finite element methods provide similar estimations for hip joint contact mechanics during walking gait. Journal of Biomechanics, 2021, 115, 110163.	0.9	8
20	Structure, composition and fibril-reinforced poroviscoelastic properties of bovine knee ligaments and patellar tendon. Journal of the Royal Society Interface, 2021, 18, 20200737.	1.5	8
21	Effect of Impact Velocity, Flooring Material, and Trochanteric Soft-Tissue Quality on Acetabular Fracture during a Sideways Fall: A Parametric Finite Element Approach. Applied Sciences (Switzerland), 2021, 11, 365.	1.3	2
22	A numerical framework for mechano-regulated tendon healingâ€"Simulation of early regeneration of the Achilles tendon. PLoS Computational Biology, 2021, 17, e1008636.	1.5	8
23	Early changes in osteochondral tissues in a rabbit model of postâ€traumatic osteoarthritis. Journal of Orthopaedic Research, 2021, 39, 2556-2567.	1.2	7
24	Automated analysis of rabbit knee calcified cartilage morphology using microâ€computed tomography and deep learning. Journal of Anatomy, 2021, 239, 251-263.	0.9	10
25	Collagen fibres determine the crack morphology in articular cartilage. Acta Biomaterialia, 2021, 126, 301-314.	4.1	18
26	Biomechanical, biochemical, and near infrared spectral data of bovine knee ligaments and patellar tendon. Data in Brief, 2021, 36, 106976.	0.5	1
27	An in silico Framework of Cartilage Degeneration That Integrates Fibril Reorientation and Degradation Along With Altered Hydration and Fixed Charge Density Loss. Frontiers in Bioengineering and Biotechnology, 2021, 9, 680257.	2.0	6
28	High-resolution infrared microspectroscopic characterization of cartilage cell microenvironment. Acta Biomaterialia, 2021, 134, 252-260.	4.1	8
29	Elastic, Dynamic Viscoelastic and Model-Derived Fibril-Reinforced Poroelastic Mechanical Properties of Normal and Osteoarthritic Human Femoral Condyle Cartilage. Annals of Biomedical Engineering, 2021, 49, 2622-2634.	1.3	11
30	Functional and structural properties of human patellar articular cartilage in osteoarthritis. Journal of Biomechanics, 2021, 126, 110634.	0.9	9
31	Guide to mechanical characterization of articular cartilage and hydrogel constructs based on a systematic in silico parameter sensitivity analysis. Journal of the Mechanical Behavior of Biomedical Materials, 2021, 124, 104795.	1.5	5
32	Structural, compositional, and functional effects of blunt and sharp cartilage damage on the joint: A 9â€month equine groove model study. Journal of Orthopaedic Research, 2021, 39, 2363-2375.	1.2	5
33	Expediting Finite Element Analyses for Subject-Specific Studies of Knee Osteoarthritis: A Literature Review. Applied Sciences (Switzerland), 2021, 11, 11440.	1.3	6
34	Identification of locations susceptible to osteoarthritis in patients with anterior cruciate ligament reconstruction: Combining knee joint computational modelling with follow-up T1Ï•and T2 imaging. Clinical Biomechanics, 2020, 79, 104844.	0.5	17
35	Anterior cruciate ligament transection of rabbits alters composition, structure and biomechanics of articular cartilage and chondrocyte deformation 2â€weeks post-surgery in a site-specific manner. Journal of Biomechanics, 2020, 98, 109450.	0.9	17
36	Rapid CT-based Estimation of Articular Cartilage Biomechanics in the Knee Joint Without Cartilage Segmentation. Annals of Biomedical Engineering, 2020, 48, 2965-2975.	1.3	10

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37	Structureâ€“Function Relationships of Healthy and Osteoarthritic Human Tibial Cartilage: Experimental and Numerical Investigation. Annals of Biomedical Engineering, 2020, 48, 2887-2900.	1.3	30
38	Machine Learning Classification of Articular Cartilage Integrity Using Near Infrared Spectroscopy. Cellular and Molecular Bioengineering, 2020, 13, 219-228.	1.0	25
39	Multiparametric MR imaging reveals early cartilage degeneration at 2 and 8 weeks after ACL transection in a rabbit model. Journal of Orthopaedic Research, 2020, 38, 1974-1986.	1.2	18
40	Mechanobiological model for simulation of injured cartilage degradation via pro-inflammatory cytokines and mechanical stimulus. PLoS Computational Biology, 2020, 16, e1007998.	1.5	20
41	Raman microspectroscopic analysis of the tissue-specific composition of the human osteochondral junction in osteoarthritis: A pilot study. Acta Biomaterialia, 2020, 106, 145-155.	4.1	31
42	A multiscale framework for evaluating three-dimensional cell mechanics in fibril-reinforced poroelastic tissues with anatomical cell distribution â€“ Analysis of chondrocyte deformation behavior in mechanically loaded articular cartilage. Journal of Biomechanics, 2020, 101, 109648.	0.9	13
43	Clinical Contrast-Enhanced Computed Tomography With Semi-Automatic Segmentation Provides Feasible Input for Computational Models of the Knee Joint. Journal of Biomechanical Engineering, 2020, 142, .	0.6	2
44	Title is missing!. , 2020, 16, e1007998.		0
45	Title is missing!. , 2020, 16, e1007998.		0
46	Title is missing!. , 2020, 16, e1007998.		0
47	Eight-year trajectories of changes in health-related quality of life in knee osteoarthritis: Data from the Osteoarthritis Initiative (OAI). PLoS ONE, 2019, 14, e0219902.	1.1	22
48	Elastic, Viscoelastic and Fibril-Reinforced Poroelastic Material Properties of Healthy and Osteoarthritic Human Tibial Cartilage. Annals of Biomedical Engineering, 2019, 47, 953-966.	1.3	43
49	Maximum shear strain-based algorithm can predict proteoglycan loss in damaged articular cartilage. Biomechanics and Modeling in Mechanobiology, 2019, 18, 753-778.	1.4	27
50	Anterior cruciate ligament transection alters the n-3/n-6 fatty acid balance in the lapine infrapatellar fat pad. Lipids in Health and Disease, 2019, 18, 67.	1.2	17
51	Computational evaluation of altered biomechanics related to articular cartilage lesions observed in vivo. Journal of Orthopaedic Research, 2019, 37, 1042-1051.	1.2	18
52	The effect of different preconditioning protocols on repeatability of bovine ACL stress-relaxation response in tension. Journal of the Mechanical Behavior of Biomedical Materials, 2019, 90, 493-501.	1.5	19
53	Utilizing Atlas-Based Modeling to Predict Knee Joint Cartilage Degeneration: Data from the Osteoarthritis Initiative. Annals of Biomedical Engineering, 2019, 47, 813-825.	1.3	33
54	Near Infrared Spectroscopic Evaluation of Ligament and Tendon Biomechanical Properties. Annals of Biomedical Engineering, 2019, 47, 213-222.	1.3	8

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55	Experimental mechanical strain measurement of tissues. PeerJ, 2019, 7, e6545.	0.9	16
56	Alterations in structural macromolecules and chondrocyte deformations in lapine retropatellar cartilage 9 weeks after anterior cruciate ligament transection. Journal of Orthopaedic Research, 2018, 36, 342-350.	1.2	9
57	The effect of constitutive representations and structural constituents of ligaments on knee joint mechanics. Scientific Reports, 2018, 8, 2323.	1.6	41
58	Estimation of the Effect of Body Weight on the Development of Osteoarthritis Based on Cumulative Stresses in Cartilage: Data from the Osteoarthritis Initiative. Annals of Biomedical Engineering, 2018, 46, 334-344.	1.3	16
59	A computational algorithm to simulate disorganization of collagen network in injured articular cartilage. Biomechanics and Modeling in Mechanobiology, 2018, 17, 689-699.	1.4	21
60	Evaluation of the Effect of Bariatric Surgery-Induced Weight Loss on Knee Gait and Cartilage Degeneration. Journal of Biomechanical Engineering, 2018, 140, .	0.6	21
61	New algorithm for simulation of proteoglycan loss and collagen degeneration in the knee joint: Data from the osteoarthritis initiative. Journal of Orthopaedic Research, 2018, 36, 1673-1683.	1.2	27
62	Comparison between kinetic and kinetic-kinematic driven knee joint finite element models. Scientific Reports, 2018, 8, 17351.	1.6	29
63	A novel mechanobiological model can predict how physiologically relevant dynamic loading causes proteoglycan loss in mechanically injured articular cartilage. Scientific Reports, 2018, 8, 15599.	1.6	46
64	Iterative and discrete reconstruction in the evaluation of the rabbit model of osteoarthritis. Scientific Reports, 2018, 8, 12051.	1.6	6
65	Characterizing human subchondral bone properties using near-infrared (NIR) spectroscopy. Scientific Reports, 2018, 8, 9733.	1.6	15
66	Health-related quality of life in relation to symptomatic and radiographic definitions of knee osteoarthritis: data from Osteoarthritis Initiative (OAI) 4-year follow-up study. Health and Quality of Life Outcomes, 2018, 16, 154.	1.0	21
67	Site-specific glycosaminoglycan content is better maintained in the pericellular matrix than the extracellular matrix in early post-traumatic osteoarthritis. PLoS ONE, 2018, 13, e0196203.	1.1	18
68	Deep Learning Classification of Cartilage Integrity Using Near Infrared Spectroscopy. , 2018, , .		2
69	Structure-function relationships of human meniscus. Journal of the Mechanical Behavior of Biomedical Materials, 2017, 67, 51-60.	1.5	42
70	Simulation of Subject-Specific Progression of Knee Osteoarthritis and Comparison to Experimental Follow-up Data: Data from the Osteoarthritis Initiative. Scientific Reports, 2017, 7, 9177.	1.6	37
71	Application of a semi-automatic cartilage segmentation method for biomechanical modeling of the knee joint. Computer Methods in Biomechanics and Biomedical Engineering, 2017, 20, 1453-1463.	0.9	30
72	The effect of fixed charge density and cartilage swelling on mechanics of knee joint cartilage during simulated gait. Journal of Biomechanics, 2017, 61, 34-44.	0.9	14

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73	Ultrasound Assessment of Human Meniscus. Ultrasound in Medicine and Biology, 2017, 43, 1753-1763.	0.7	4
74	A combined experimental atomic force microscopy-based nanoindentation and computational modeling approach to unravel the key contributors to the time-dependent mechanical behavior of single cells. Biomechanics and Modeling in Mechanobiology, 2017, 16, 297-311.	1.4	11
75	Optical spectroscopic characterization of human meniscus biomechanical properties. Journal of Biomedical Optics, 2017, 22, 1.	1.4	7
76	Quantitative Evaluation of the Mechanical Risks Caused by Focal Cartilage Defects in the Knee. Scientific Reports, 2016, 6, 37538.	1.6	59
77	Spatial variation of fixed charge density in knee joint cartilage from sodium MRI â€" Implication on knee joint mechanics under static loading. Journal of Biomechanics, 2016, 49, 3387-3396.	0.9	20
78	A Novel Method to Simulate the Progression of Collagen Degeneration of Cartilage in the Knee: Data from the Osteoarthritis Initiative. Scientific Reports, 2016, 6, 21415.	1.6	78
79	Comparison of different material models of articular cartilage in 3D computational modeling of the knee: Data from the Osteoarthritis Initiative (OAI). Journal of Biomechanics, 2016, 49, 3891-3900.	0.9	47
80	Optical coherence tomography enables accurate measurement of equine cartilage thickness for determination of speed of sound. Monthly Notices of the Royal Astronomical Society: Letters, 2016, 87, 418-424.	1.2	5
81	Correlation of Subchondral Bone Density and Structure from Plain Radiographs with Micro Computed Tomography Ex Vivo. Annals of Biomedical Engineering, 2016, 44, 1698-1709.	1.3	19
82	Modeling of interstitial fluid movement in soft tissue under negative pressure â€" relevance to treatment of tissue swelling. Computer Methods in Biomechanics and Biomedical Engineering, 2016, 19, 1089-1098.	0.9	6
83	Three dimensional patient-specific collagen architecture modulates cartilage responses in the knee joint during gait. Computer Methods in Biomechanics and Biomedical Engineering, 2016, 19, 1225-1240.	0.9	14
84	Merge of motion analysis, multibody dynamics and finite element method for the subject-specific analysis of cartilage loading patterns during gait: differences between rotation and moment-driven models of human knee joint. Multibody System Dynamics, 2016, 37, 271-290.	1.7	25
85	New Concept to Restore Normal Cell Responses in Osteoarthritic Knee Joint Cartilage. Exercise and Sport Sciences Reviews, 2015, 43, 143-152.	1.6	9
86	Implementation of a gait cycle loading into healthy and meniscectomised knee joint models with fibril-reinforced articular cartilage. Computer Methods in Biomechanics and Biomedical Engineering, 2015, 18, 141-152.	0.9	53
87	A multi-scale finite element model for investigation of chondrocyte mechanics in normal and medial meniscectomy human knee joint during walking. Journal of Biomechanics, 2015, 48, 1397-1406.	0.9	54
88	Topographical investigation of changes in depthâ€wise proteoglycan distribution in rabbit femoral articular cartilage at 4 weeks after transection of the anterior cruciate ligament. Journal of Orthopaedic Research, 2015, 33, 1278-1286.	1.2	9
89	Importance of Material Properties and Porosity of Bone on Mechanical Response of Articular Cartilage in Human Knee Jointâ€"A Two-Dimensional Finite Element Study. Journal of Biomechanical Engineering, 2014, 136, 121005.	0.6	21
90	Cellâ€"tissue interactions in osteoarthritic human hip joint articular cartilage. Connective Tissue Research, 2014, 55, 282-291.	1.1	9

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91	Back-Side Wear in HexLoc Cups Clinico-Radiological, Immunohistopathological, Finite Element, and Retrieval Analysis Studies. Journal of Long-Term Effects of Medical Implants, 2014, 24, 319-331.	0.2	3
92	Implementation of subjectâ€specific collagen architecture of cartilage into a 2D computational model of a knee jointâ€"data from the osteoarthritis initiative (OAI). Journal of Orthopaedic Research, 2013, 31, 10-22.	1.2	38
93	Experimental and computational analysis of soft tissue mechanical response under negative pressure in forearm. Skin Research and Technology, 2013, 19, e356-65.	0.8	22
94	Superficial Collagen Fibril Modulus and Pericellular Fixed Charge Density Modulate Chondrocyte Volumetric Behaviour in Early Osteoarthritis. Computational and Mathematical Methods in Medicine, 2013, 2013, 1-14.	0.7	29
95	Effects of radial tears and partial meniscectomy of lateral meniscus on the knee joint mechanics during the stance phase of the gait cycle-A 3D finite element study. Journal of Orthopaedic Research, 2013, 31, 1208-1217.	1.2	81
96	A Review of the Combination of Experimental Measurements and Fibril-Reinforced Modeling for Investigation of Articular Cartilage and Chondrocyte Response to Loading. Computational and Mathematical Methods in Medicine, 2013, 2013, 1-23.	0.7	48
97	Computational Models of Articular Cartilage. Computational and Mathematical Methods in Medicine, 2013, 2013, 1-2.	0.7	5
98	A Finite Element Study of Micropipette Aspiration of Single Cells: Effect of Compressibility. Computational and Mathematical Methods in Medicine, 2012, 2012, 1-9.	0.7	25
99	Hypotonic challenge modulates cell volumes differently in the superficial zone of intact articular cartilage and cartilage explant. Biomechanics and Modeling in Mechanobiology, 2012, 11, 665-675.	1.4	15
100	Experimental and computational analysis of soft tissue stiffness in forearm using a manual indentation device. Medical Engineering and Physics, 2011, 33, 1245-1253.	0.8	66
101	Structural and Compositional Changes in Peri- and Extracellular Matrix of Osteoarthritic Cartilage Modulate Chondrocyte Morphology. Cellular and Molecular Bioengineering, 2011, 4, 484-494.	1.0	14
102	Early bone growth on the surface of titanium implants in rat femur is enhanced by an amorphous diamond coating. Monthly Notices of the Royal Astronomical Society: Letters, 2011, 82, 499-503.	1.2	17
103	Compressive and tensile properties of articular cartilage in axial loading are modulated differently by osmotic environment. Medical Engineering and Physics, 2010, 32, 155-160.	0.8	64
104	Osmotic loading of articular cartilage modulates cell deformations along primary collagen fibril directions. Journal of Biomechanics, 2010, 43, 783-787.	0.9	20
105	Composition of the pericellular matrix modulates the deformation behaviour of chondrocytes in articular cartilage under static loading. Medical and Biological Engineering and Computing, 2009, 47, 1281-90.	1.6	40
106	Uncertainties in indentation testing of articular cartilage: A fibril-reinforced poroviscoelastic study. Medical Engineering and Physics, 2008, 30, 506-515.	0.8	59
107	Stressâ€"relaxation of human patellar articular cartilage in unconfined compression: Prediction of mechanical response by tissue composition and structure. Journal of Biomechanics, 2008, 41, 1978-1986.	0.9	93
108	Depth-dependent analysis of the role of collagen fibrils, fixed charges and fluid in the pericellular matrix of articular cartilage on chondrocyte mechanics. Journal of Biomechanics, 2008, 41, 480-485.	0.9	59

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109	Importance of Collagen Orientation and Depth-Dependent Fixed Charge Densities of Cartilage on Mechanical Behavior of Chondrocytes. Journal of Biomechanical Engineering, 2008, 130, 021003.	0.6	84
110	Characterization of articular cartilage by combining microscopic analysis with a fibril-reinforced finite-element model. Journal of Biomechanics, 2007, 40, 1862-1870.	0.9	150
111	Collagen Network of Articular Cartilage Modulates Fluid Flow and Mechanical Stresses in Chondrocyte. Biomechanics and Modeling in Mechanobiology, 2006, 5, 150-159.	1.4	32
112	Collagen network primarily controls Poisson's ratio of bovine articular cartilage in compression. Journal of Orthopaedic Research, 2006, 24, 690-699.	1.2	126
113	Improvement of arthroscopic cartilage stiffness probe using amorphous diamond coating. , 2005, 73B, 15-22.		9
114	The effect of geometry and abduction angle on the stresses in cemented UHMWPE acetabular cups â€“ finite element simulations and experimental tests. BioMedical Engineering OnLine, 2005, 4, 32.	1.3	43
115	Fibril reinforced poroelastic model predicts specifically mechanical behavior of normal, proteoglycan depleted and collagen degraded articular cartilage. Journal of Biomechanics, 2003, 36, 1373-1379.	0.9	243
116	Ultrasound indentation of bovine knee articular cartilage in situ. Journal of Biomechanics, 2003, 36, 1259-1267.	0.9	47
117	Structure-Function Relationships in Enzymatically Modified Articular Cartilage. Cells Tissues Organs, 2003, 175, 121-132.	1.3	117
118	Experimental and numerical validation for the novel configuration of an arthroscopic indentation instrument. Physics in Medicine and Biology, 2003, 48, 1565-1576.	1.6	25
119	Real-time ultrasound analysis of articular cartilage degradation in vitro. Ultrasound in Medicine and Biology, 2002, 28, 519-525.	0.7	91