Scott L Delp

List of Publications by Year
in descending order

268 papers	32,791 citations	2975 93 h-index	4885 168 g-index
292 all docs	292 docs citations	292 times ranked	19603 citing authors

#	Article	IF	Citations
1	OpenSim: Open-Source Software to Create and Analyze Dynamic Simulations of Movement. IEEE Transactions on Biomedical Engineering, 2007, 54, 1940-1950.	4.2	3,477
2	A Model of the Upper Extremity for Simulating Musculoskeletal Surgery and Analyzing Neuromuscular Control. Annals of Biomedical Engineering, 2005, 33, 829-840.	2.5	810
3	OpenSim: Simulating musculoskeletal dynamics and neuromuscular control to study human and animal movement. PLoS Computational Biology, 2018, 14, e1006223.	3.2	735
4	Large-scale physical activity data reveal worldwide activity inequality. Nature, 2017, 547, 336-339.	27.8	675
5	A Model of the Lower Limb for Analysis of Human Movement. Annals of Biomedical Engineering, 2010, 38, 269-279.	2.5	659
6	Muscle contributions to propulsion and support during running. Journal of Biomechanics, 2010, 43, 2709-2716.	2.1	608
7	Full-Body Musculoskeletal Model for Muscle-Driven Simulation of Human Gait. IEEE Transactions on Biomedical Engineering, 2016, 63, 2068-2079.	4.2	580
8	Generating dynamic simulations of movement using computed muscle control. Journal of Biomechanics, 2003, 36, 321-328.	2.1	546
9	Rejuvenation of the muscle stem cell population restores strength to injured aged muscles. Nature Medicine, 2014, 20, 255-264.	30.7	545
10	Is My Model Good Enough? Best Practices for Verification and Validation of Musculoskeletal Models and Simulations of Movement. Journal of Biomechanical Engineering, 2015, 137, 020905.	1.3	509
11	Wirelessly powered, fully internal optogenetics for brain, spinal and peripheral circuits in mice. Nature Methods, 2015, 12, 969-974.	19.0	473
12	Flexing Computational Muscle: Modeling and Simulation of Musculotendon Dynamics. Journal of Biomechanical Engineering, 2013, 135, 021005.	1.3	465
13	Grand challenge competition to predict in vivo knee loads. Journal of Orthopaedic Research, 2012, 30, 503-513.	2.3	449
14	A graphics-based software system to develop and analyze models of musculoskeletal structures. Computers in Biology and Medicine, 1995, 25, 21-34.	7.0	433
15	Short Telomeres and Stem Cell Exhaustion Model Duchenne Muscular Dystrophy in mdx/mTR Mice. Cell, 2010, 143, 1059-1071.	28.9	428
16	Influence of Muscle Morphometry and Moment Arms on the Moment-Generating Capacity of Human Neck Muscles. Spine, 1998, 23, 412-422.	2.0	382
17	A 3D model of muscle reveals the causes of nonuniform strains in the biceps brachii. Journal of Biomechanics, 2005, 38, 657-665.	2.1	356
18	Muscle contributions to support and progression over a range of walking speeds. Journal of Biomechanics, 2008, 41, 3243-3252.	2.1	352

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19	Computer Assisted Knee Replacement. Clinical Orthopaedics and Related Research, 1998, 354, 49-56.	1.5	309
20	Quantified self and human movement: A review on the clinical impact of wearable sensing and feedback for gait analysis and intervention. Gait and Posture, 2014, 40, 11-19.	1.4	309
21	Variation of muscle moment arms with elbow and forearm position. Journal of Biomechanics, 1995, 28, 513-525.	2.1	308
22	Compressive tibiofemoral force during crouch gait. Gait and Posture, 2012, 35, 556-560.	1.4	297
23	Variation of rotation moment arms with hip flexion. Journal of Biomechanics, 1999, 32, 493-501.	2.1	296
24	Minimally invasive high-speed imaging of sarcomere contractile dynamics in mice and humans. Nature, 2008, 454, 784-788.	27.8	294
25	The isometric functional capacity of muscles that cross the elbow. Journal of Biomechanics, 2000, 33, 943-952.	2.1	290
26	Muscles that support the body also modulate forward progression during walking. Journal of Biomechanics, 2006, 39, 2623-2630.	2.1	281
27	The influence of muscles on knee flexion during the swing phase of gait. Journal of Biomechanics, 1996, 29, 723-733.	2.1	267
28	Machine learning in human movement biomechanics: Best practices, common pitfalls, and new opportunities. Journal of Biomechanics, 2018, 81, 1-11.	2.1	266
29	Three-Dimensional Representation of Complex Muscle Architectures and Geometries. Annals of Biomedical Engineering, 2005, 33, 661-673.	2.5	264
30	A Brainstem-Spinal Cord Inhibitory Circuit for Mechanical Pain Modulation by GABA and Enkephalins. Neuron, 2017, 93, 822-839.e6.	8.1	250
31	Muscle contributions to fore-aft and vertical body mass center accelerations over a range of running speeds. Journal of Biomechanics, 2013, 46, 780-787.	2.1	231
32	Accuracy of Muscle Moment Arms Estimated from MRI-Based Musculoskeletal Models of the Lower Extremity. Computer Aided Surgery, 2000, 5, 108-119.	1.8	226
33	Upper limb muscle volumes in adult subjects. Journal of Biomechanics, 2007, 40, 742-749.	2.1	224
34	OpenSim: a musculoskeletal modeling and simulation framework for in silico investigations and exchange. Procedia IUTAM, 2011, 2, 212-232.	1.2	219
35	How robust is human gait to muscle weakness?. Gait and Posture, 2012, 36, 113-119.	1.4	217
36	Subject-specific knee joint geometry improves predictions of medial tibiofemoral contact forces. Journal of Biomechanics, 2013, 46, 2778-2786.	2.1	216

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37	Knee muscle forces during walking and running in patellofemoral pain patients and pain-free controls. Journal of Biomechanics, 2009, 42, 898-905.	2.1	202
38	Image-based musculoskeletal modeling: Applications, advances, and future opportunities. Journal of Magnetic Resonance Imaging, 2007, 25, 441-451.	3.4	200
39	How muscle architecture and moment arms affect wrist flexion-extension moments. Journal of Biomechanics, 1997, 30, 705-712.	2.1	198
40	How muscle fiber lengths and velocities affect muscle force generation as humans walk and run at different speeds. Journal of Experimental Biology, 2013, 216, 2150-60.	1.7	197
41	Structural foundations of optogenetics: Determinants of channelrhodopsin ion selectivity. Proceedings of the National Academy of Sciences of the United States of America, 2016, 113, 822-829.	7.1	197
42	Simbody: multibody dynamics for biomedical research. Procedia IUTAM, 2011, 2, 241-261.	1.2	193
43	Virally mediated optogenetic excitation and inhibition of pain in freely moving nontransgenic mice. Nature Biotechnology, 2014, 32, 274-278.	17.5	191
44	Patellofemoral joint contact area increases with knee flexion and weight-bearing. Journal of Orthopaedic Research, 2005, 23, 345-350.	2.3	184
45	Hamstrings and psoas lengths during normal and crouch gait: Implications for muscle-tendon surgery. Journal of Orthopaedic Research, 1996, 14, 144-151.	2.3	183
46	Sixâ€week gait retraining program reduces knee adduction moment, reduces pain, and improves function for individuals with medial compartment knee osteoarthritis. Journal of Orthopaedic Research, 2013, 31, 1020-1025.	2.3	181
47	Capacity to increase walking speed is limited by impaired hip and ankle power generation in lower functioning persons post-stroke. Gait and Posture, 2009, 29, 129-137.	1.4	180
48	Muscular contributions to hip and knee extension during the single limb stance phase of normal gait: a framework for investigating the causes of crouch gait. Journal of Biomechanics, 2005, 38, 2181-2189.	2.1	176
49	Orderly recruitment of motor units under optical control in vivo. Nature Medicine, 2010, 16, 1161-1165.	30.7	176
50	The Variability of Femoral Rotational Alignment in Total Knee Arthroplasty. Journal of Bone and Joint Surgery - Series A, 2005, 87, 2276.	3.0	175
51	Nonuniform shortening in the biceps brachii during elbow flexion. Journal of Applied Physiology, 2002, 92, 2381-2389.	2.5	172
52	Optimizing locomotion controllers using biologically-based actuators and objectives. ACM Transactions on Graphics, 2012, 31, 1-11.	7.2	172
53	Muscle contributions to support and progression during single-limb stance in crouch gait. Journal of Biomechanics, 2010, 43, 2099-2105.	2.1	170
54	The role of estimating muscle-tendon lengths and velocities of the hamstrings in the evaluation and treatment of crouch gait. Gait and Posture, 2006, 23, 273-281.	1.4	166

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55	Toe-in gait reduces the first peak knee adduction moment in patients with medial compartment knee osteoarthritis. Journal of Biomechanics, 2013, 46, 122-128.	2.1	166
56	How tibiofemoral alignment and contact locations affect predictions of medial and lateral tibiofemoral contact forces. Journal of Biomechanics, 2015, 48, 644-650.	2.1	166
57	Analysis of hindlimb muscle moment arms in Tyrannosaurus rex using a three-dimensional musculoskeletal computer model: implications for stance, gait, and speed. Paleobiology, 2005, 31, 676.	2.0	163
58	Prostaglandin E2 is essential for efficacious skeletal muscle stem-cell function, augmenting regeneration and strength. Proceedings of the National Academy of Sciences of the United States of America, 2017, 114, 6675-6684.	7.1	160
59	Effects of hip center location on the moment-generating capacity of the muscles. Journal of Biomechanics, 1993, 26, 485-499.	2.1	158
60	Muscles that influence knee flexion velocity in double support: implications for stiff-knee gait. Journal of Biomechanics, 2004, 37, 1189-1196.	2.1	149
61	Are Subject-Specific Musculoskeletal Models Robust to the Uncertainties in Parameter Identification?. PLoS ONE, 2014, 9, e112625.	2.5	146
62	A Modeling Framework to Estimate Patellofemoral Joint Cartilage Stress In Vivo. Medicine and Science in Sports and Exercise, 2005, 37, 1924-1930.	0.4	145
63	How Superior Placement of the Joint Center in Hip Arthroplasty Affects the Abductor Muscles. Clinical Orthopaedics and Related Research, 1996, 328, 137-146.	1.5	140
64	Optogenetic Control of Targeted Peripheral Axons in Freely Moving Animals. PLoS ONE, 2013, 8, e72691.	2.5	138
65	Muscle contributions to support during gait in an individual with post-stroke hemiparesis. Journal of Biomechanics, 2006, 39, 1769-1777.	2.1	133
66	Surgical navigation for total knee arthroplasty: A perspective. Journal of Biomechanics, 2007, 40, 728-735.	2.1	133
67	Deep neural networks enable quantitative movement analysis using single-camera videos. Nature Communications, 2020, 11, 4054.	12.8	133
68	Preserving plantar flexion strength after surgical treatment for contracture of the triceps surae: A computer simulation study. Journal of Orthopaedic Research, 1995, 13, 96-104.	2.3	132
69	Crouched postures reduce the capacity of muscles to extend the hip and knee during the single-limb stance phase of gait. Journal of Biomechanics, 2008, 41, 960-967.	2.1	132
70	Beyond the brain: Optogenetic control in the spinal cord and peripheral nervous system. Science Translational Medicine, 2016, 8, 337rv5.	12.4	129
71	Simulating Ideal Assistive Devices to Reduce the Metabolic Cost of Running. PLoS ONE, 2016, 11, e0163417.	2.5	127
72	Three-Dimensional Dynamic Simulation of Total Knee Replacement Motion During a Step-Up Task. Journal of Biomechanical Engineering, 2001, 123, 599-606.	1.3	122

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73	Simulating ideal assistive devices to reduce the metabolic cost of walking with heavy loads. PLoS ONE, 2017, 12, e0180320.	2.5	121
74	Wearable sensors enable personalized predictions of clinical laboratory measurements. Nature Medicine, 2021, 27, 1105-1112.	30.7	121
75	Internal rotation gait: a compensatory mechanism to restore abduction capacity decreased by bone deformity?. Developmental Medicine and Child Neurology, 1997, 39, 40-44.	2.1	120
76	Predicting gait adaptations due to ankle plantarflexor muscle weakness and contracture using physics-based musculoskeletal simulations. PLoS Computational Biology, 2019, 15, e1006993.	3.2	120
77	Use it or lose it: multiscale skeletal muscle adaptation to mechanical stimuli. Biomechanics and Modeling in Mechanobiology, 2015, 14, 195-215.	2.8	119
78	Evaluation of a Deformable Musculoskeletal Model for Estimating Muscleâ€“Tendon Lengths During Crouch Gait. Annals of Biomedical Engineering, 2001, 29, 263-274.	2.5	118
79	How much muscle strength is required to walk in a crouch gait?. Journal of Biomechanics, 2012, 45, 2564-2569.	2.1	118
80	Kinematic and kinetic factors that correlate with improved knee flexion following treatment for stiff-knee gait. Journal of Biomechanics, 2006, 39, 689-698.	2.1	116
81	Using realâ€time MRI to quantify altered joint kinematics in subjects with patellofemoral pain and to evaluate the effects of a patellar brace or sleeve on joint motion. Journal of Orthopaedic Research, 2009, 27, 571-577.	2.3	116
82	The High Variability of Tibial Rotational Alignment in Total Knee Arthroplasty. Clinical Orthopaedics and Related Research, 2006, 452, 65-69.	1.5	112
83	Can Strength Training Predictably Improve Gait Kinematics? A Pilot Study on the Effects of Hip and Knee Extensor Strengthening on Lower-Extremity Alignment in Cerebral Palsy. Physical Therapy, 2010, 90, 269-279.	2.4	112
84	Fibre operating lengths of human lower limb muscles during walking. Philosophical Transactions of the Royal Society B: Biological Sciences, 2011, 366, 1530-1539.	4.0	112
85	Scaling of peak moment arms of elbow muscles with upper extremity bone dimensions. Journal of Biomechanics, 2002, 35, 19-26.	2.1	111
86	Musculoskeletal modelling of an ostrich (<i>Struthio camelus</i>) pelvic limb: influence of limb orientation on muscular capacity during locomotion. PeerJ, 2015, 3, e1001.	2.0	111
87	Three-Dimensional Isometric Strength of Neck Muscles in Humans. Spine, 2001, 26, 1904-1909.	2.0	110
88	Changes in tibiofemoral forces due to variations in muscle activity during walking. Journal of Orthopaedic Research, 2014, 32, 769-776.	2.3	109
89	The effect of excessive tibial torsion on the capacity of muscles to extend the hip and knee during single-limb stance. Gait and Posture, 2007, 26, 546-552.	1.4	108
90	Best practices for analyzing large-scale health data from wearables and smartphone apps. Npj Digital Medicine, 2019, 2, 45.	10.9	108

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91	Predicting the metabolic cost of incline walking from muscle activity and walking mechanics. Journal of Biomechanics, 2012, 45, 1842-1849.	2.1	106
92	A Biomechanical Model of the Scapulothoracic Joint to Accurately Capture Scapular Kinematics during Shoulder Movements. PLoS ONE, 2016, 11, e0141028.	2.5	106
93	Contributions of muscle forces and toe-off kinematics to peak knee flexion during the swing phase of normal gait: an induced position analysis. Journal of Biomechanics, 2004, 37, 731-737.	2.1	105
94	Men and women adopt similar walking mechanics and muscle activation patterns during load carriage. Journal of Biomechanics, 2013, 46, 2522-2528.	2.1	101
95	Accuracy of muscle moment arms estimated from MRI-based musculoskeletal models of the lower extremity. Computer Aided Surgery, 2000, 5, 108-119.	1.8	101
96	Rotational moment arms of the medial hamstrings and adductors vary with femoral geometry and limb position: implications for the treatment of internally rotated gait. Journal of Biomechanics, 2001, 34, 437-447.	2.1	97
97	Rectus femoris and vastus intermedius fiber excursions predicted by three-dimensional muscle models. Journal of Biomechanics, 2006, 39, 1383-1391.	2.1	97
98	The action of the rectus femoris muscle following distal tendon transfer: does it generate knee flexion moment?. Developmental Medicine and Child Neurology, 1997, 39, 99-105.	2.1	96
99	Moment-generating capacity of upper limb muscles in healthy adults. Journal of Biomechanics, 2007, 40, 2442-2449.	2.1	96
100	The influence of femoral internal and external rotation on cartilage stresses within the patellofemoral joint. Journal of Orthopaedic Research, 2008, 26, 1627-1635.	2.3	96
101	OpenSim Moco: Musculoskeletal optimal control. PLoS Computational Biology, 2020, 16, e1008493.	3.2	96
102	Patellar Maltracking Correlates With Vastus Medialis Activation Delay in Patellofemoral Pain Patients. American Journal of Sports Medicine, 2011, 39, 590-598.	4.2	95
103	Stretching Your Energetic Budget: How Tendon Compliance Affects the Metabolic Cost of Running. PLoS ONE, 2016, 11, e0150378.	2.5	95
104	Differences in patellofemoral kinematics between weightâ€bearing and nonâ€weightâ€bearing conditions in patients with patellofemoral pain. Journal of Orthopaedic Research, 2011, 29, 312-317.	2.3	93
105	Architecture of the rectus abdominis, quadratus lumborum, and erector spinae. Journal of Biomechanics, 2001, 34, 371-375.	2.1	92
106	Transfer of the rectus femoris: Effects of transfer site on moment arms about the knee and hip. Journal of Biomechanics, 1994, 27, 1201-1211.	2.1	91
107	In vivo motion of the rectus femoris muscle after tendon transfer surgery. Journal of Biomechanics, 2002, 35, 1029-1037.	2.1	91
108	The importance of swing-phase initial conditions in stiff-knee gait. Journal of Biomechanics, 2003, 36, 1111-1116.	2.1	91

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109	Evaluation of a new algorithm to determine the hip joint center. Journal of Biomechanics, 2006, 39, 125-130.	2.1	91
110	Predictive Simulation Generates Human Adaptations during Loaded and Inclined Walking. PLoS ONE, 2015, 10, e0121407.	2.5	91
111	Learning oneâ€™s genetic risk changes physiology independent of actual genetic risk. Nature Human Behaviour, 2019, 3, 48-56.	12.0	91
112	Do the hamstrings and adductors contribute to excessive internal rotation of the hip in persons with cerebral palsy?. Gait and Posture, 2000, 11, 181-190.	1.4	89
113	Contributions of muscles to mediolateral ground reaction force over a range of walking speeds. Journal of Biomechanics, 2012, 45, 2438-2443.	2.1	88
114	Force- and Moment-Generating Capacity of Lower-Extremity Muscles Before and After Tendon Lengthening. Clinical Orthopaedics and Related Research, 1992, &NA;, 247???259.	1.5	87
115	Intraoperative passive kinematics of osteoarthritic knees before and after total knee arthroplasty. Journal of Orthopaedic Research, 2006, 24, 1607-1614.	2.3	84
116	Maximumisometric moments generated by the wrist muscles in flexion-extension and radial-ulnar deviation. Journal of Biomechanics, 1996, 29, 1371-1375.	2.1	81
117	Do the hamstrings operate at increased muscleâ€“tendon lengths and velocities after surgical lengthening?. Journal of Biomechanics, 2006, 39, 1498-1506.	2.1	80
118	Posterior tilting of the tibial component decreases femoral rollback in posterior-substituting knee replacement: A computer simulation study. Journal of Orthopaedic Research, 1998, 16, 264-270.	2.3	79
119	Patellar tilt correlates with vastus lateralis: Vastus medialis activation ratio in maltracking patellofemoral pain patients. Journal of Orthopaedic Research, 2012, 30, 927-933.	2.3	78
120	Weight-bearing MRI of patellofemoral joint cartilage contact area. Journal of Magnetic Resonance Imaging, 2004, 20, 526-530.	3.4	77
121	Importance of preswing rectus femoris activity in stiff-knee gait. Journal of Biomechanics, 2008, 41, 2362-2369.	2.1	77
122	New MR imaging methods for metallic implants in the knee: Artifact correction and clinical impact. Journal of Magnetic Resonance Imaging, 2011, 33, 1121-1127.	3.4	76
123	Stabilisation of walking by intrinsic muscle properties revealed in a three-dimensional muscle-driven simulation. Computer Methods in Biomechanics and Biomedical Engineering, 2013, 16, 451-462.	1.6	75
124	Gait biomechanics in the era of data science. Journal of Biomechanics, 2016, 49, 3759-3761.	2.1	75
125	Muscle-tendon mechanics explain unexpected effects of exoskeleton assistance on metabolic rate during walking. Journal of Experimental Biology, 2017, 220, 2082-2095.	1.7	73
126	Optogenetic and chemogenetic strategies for sustained inhibition of pain. Scientific Reports, 2016, 6, 30570.	3.3	72

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127	Running with a load increases leg stiffness. Journal of Biomechanics, 2015, 48, 1003-1008.	2.1	71
128	Optimal control simulations reveal mechanisms by which arm movement improves standing long jump performance. Journal of Biomechanics, 2006, 39, 1726-1734.	2.1	69
129	Mechanisms of improved knee flexion after rectus femoris transfer surgery. Journal of Biomechanics, 2009, 42, 614-619.	2.1	68
130	Predicting outcomes of rectus femoris transfer surgery. Gait and Posture, 2009, 30, 100-105.	1.4	67
131	Automatic real-time gait event detection in children using deep neural networks. PLoS ONE, 2019, 14, e0211466.	2.5	66
132	Weakly supervised classification of aortic valve malformations using unlabeled cardiac MRI sequences. Nature Communications, 2019, 10, 3111.	12.8	65
133	Superior displacement of the hip in total joint replacement: Effects of prosthetic neck length, neck-stem angle, and anteversion angle on the moment-generating capacity of the muscles. Journal of Orthopaedic Research, 1994, 12, 860-870.	2.3	64
134	Subject-specific toe-in or toe-out gait modifications reduce the larger knee adduction moment peak more than a non-personalized approach. Journal of Biomechanics, 2018, 66, 103-110.	2.1	64
135	Patients with patellofemoral pain exhibit elevated bone metabolic activity at the patellofemoral joint. Journal of Orthopaedic Research, 2012, 30, 209-213.	2.3	63
136	Patellar maltracking is prevalent among patellofemoral pain subjects with patella alta: An upright, weightbearing MRI study. Journal of Orthopaedic Research, 2013, 31, 448-457.	2.3	63
137	Biomechanical Effects of an Injury Prevention Program in Preadolescent Female Soccer Athletes. American Journal of Sports Medicine, 2017, 45, 294-301.	4.2	63
138	Differences in muscle activity between natural forefoot and rearfoot strikers during running. Journal of Biomechanics, 2014, 47, 3593-3597.	2.1	62
139	InÂVivo Interrogation of Spinal Mechanosensory Circuits. Cell Reports, 2016, 17, 1699-1710.	6.4	62
140	Three-dimensional spatial tuning of neck muscle activation in humans. Experimental Brain Research, 2002, 147, 437-448.	1.5	60
141	What is a Moment Arm? Calculating Muscle Effectiveness in Biomechanical Models Using Generalized Coordinates. , 2013, 2013, .		60
142	Simulation of human movement: applications using OpenSim. Procedia IUTAM, 2011, 2, 186-198.	1.2	59
143	3D finite element models of shoulder muscles for computing lines of actions and moment arms. Computer Methods in Biomechanics and Biomedical Engineering, 2014, 17, 829-837.	1.6	59
144	Acute changes in foot strike pattern and cadence affect running parameters associated with tibial stress fractures. Journal of Biomechanics, 2018, 76, 1-7.	2.1	59

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145	Surgical Simulation: An Emerging Technology for Training in Emergency Medicine. Presence: Teleoperators and Virtual Environments, 1997, 6, 147-159.	0.6	58
146	Can biomechanical variables predict improvement in crouch gait?. Gait and Posture, 2011, 34, 197-201.	1.4	58
147	Muscle contributions to vertical and fore-aft accelerations are altered in subjects with crouch gait. Gait and Posture, 2013, 38, 86-91.	1.4	58
148	Preparatory co-activation of the ankle muscles may prevent ankle inversion injuries. Journal of Biomechanics, 2017, 52, 17-23.	2.1	58
149	Automated Classification of Radiographic Knee Osteoarthritis Severity Using Deep Neural Networks. Radiology: Artificial Intelligence, 2020, 2, e190065.	5.8	58
150	Minimal formulation of joint motion for biomechanisms. Nonlinear Dynamics, 2010, 62, 291-303.	5.2	57
151	An Open-Source and Wearable System for Measuring 3D Human Motion in Real-Time. IEEE Transactions on Biomedical Engineering, 2022, 69, 678-688.	4.2	57
152	InÂVivo Imaging of Human Sarcomere Twitch Dynamics in Individual Motor Units. Neuron, 2015, 88, 1109-1120.	8.1	56
153	OpenSense: An open-source toolbox for inertial-measurement-unit-based measurement of lower extremity kinematics over long durations. Journal of NeuroEngineering and Rehabilitation, 2022, 19, 22.	4.6	56
154	Muscular coordination of knee motion during the terminal-swing phase of normal gait. Journal of Biomechanics, 2007, 40, 3314-3324.	2.1	55
155	The Simbios National Center: Systems Biology in Motion. Proceedings of the IEEE, 2008, 96, 1266-1280.	21.3	53
156	Averaging Different Alignment Axes Improves Femoral Rotational Alignment in Computer-Navigated Total Knee Arthroplasty. Journal of Bone and Joint Surgery - Series A, 2008, 90, 2098-2104.	3.0	52
157	An Acute Randomized Controlled Trial of Noninvasive Peripheral Nerve Stimulation in Essential Tremor. Neuromodulation, 2019, 22, 537-545.	0.8	52
158	Evaluation of Methods That Locate the Center of the Ankle for Computer-assisted Total Knee Arthroplasty. Clinical Orthopaedics and Related Research, 2005, 439, 129-135.	1.5	51
159	Computer modeling of gait abnormalities in cerebral palsy: application to treatment planning. Theoretical Issues in Ergonomics Science, 2005, 6, 305-312.	1.8	51
160	Musculoskeletal modelling deconstructs the paradoxical effects of elastic ankle exoskeletons on plantar-flexor mechanics & energetics during hopping. Journal of Experimental Biology, 2014, 217, 4018-28.	1.7	51
161	Simulating the task-level control of human motion: a methodology and framework for implementation. Visual Computer, 2005, 21, 289-302.	3.5	48
162	Microendoscopy reveals positive correlation in multiscale length changes and variable sarcomere lengths across different regions of human muscle. Journal of Applied Physiology, 2018, 125, 1812-1820.	2.5	48

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163	Three-Dimensional Muscle-Tendon Geometry After Rectus Femoris Tendon Transfer. Journal of Bone and Joint Surgery - Series A, 2004, 86, 348-354.	3.0	48
164	Real-time imaging of skeletal muscle velocity. Journal of Magnetic Resonance Imaging, 2003, 18, 734-739.	3.4	47
165	Deep reinforcement learning for modeling human locomotion control in neuromechanical simulation. Journal of NeuroEngineering and Rehabilitation, 2021, 18, 126.	4.6	45
166	Medical device surveillance with electronic health records. Npj Digital Medicine, 2019, 2, 94.	10.9	44
167	Feasibility of using realâ€time MRI to measure joint kinematics in 1.5T and openâ€bore 0.5T systems. Journal of Magnetic Resonance Imaging, 2008, 28, 158-166.	3.4	42
168	Changes in in vivo knee contact forces through gait modification. Journal of Orthopaedic Research, 2013, 31, 434-440.	2.3	42
169	Self-Tracking Energy Transfer for Neural Stimulation in Untethered Mice. Physical Review Applied, 2015, 4, .	3.8	41
170	Connecting the legs with a spring improves human running economy. Journal of Experimental Biology, 2019, 222, .	1.7	41
171	Simulation-Based Design for Wearable Robotic Systems: An Optimization Framework for Enhancing a Standing Long Jump. IEEE Transactions on Biomedical Engineering, 2016, 63, 894-903.	4.2	40
172	Noninvasive neuromodulation in essential tremor demonstrates relief in a shamâ€controlled pilot trial. Movement Disorders, 2018, 33, 1182-1183.	3.9	38
173	Muscle Contributions to Upper-Extremity Movement and Work From a Musculoskeletal Model of the Human Shoulder. Frontiers in Neurorobotics, 2019, 13, 90.	2.8	38
174	Tradeoffs between motion and stability in posterior substituting knee arthroplasty design. Journal of Biomechanics, 1995, 28, 1155-1166.	2.1	37
175	Comparison of MRI and ¹⁸Fâ€NaF PET/CT in patients with patellofemoral pain. Journal of Magnetic Resonance Imaging, 2012, 36, 928-932.	3.4	36
176	Stability and range of motion of Insall-Burstein condylar prostheses. Journal of Arthroplasty, 1995, 10, 383-388.	3.1	35
177	Length changes of the hamstrings and adductors resulting from derotational osteotomies of the femur. Journal of Orthopaedic Research, 1999, 17, 279-285.	2.3	35
178	Contributions of muscles to terminal-swing knee motions vary with walking speed. Journal of Biomechanics, 2007, 40, 3660-3671.	2.1	35
179	Optical control of neuronal excitation and inhibition using a single opsin protein, ChR2. Scientific Reports, 2013, 3, 3110.	3.3	35
180	Prospective Home-use Study on Non-invasive Neuromodulation Therapy for Essential Tremor. Tremor and Other Hyperkinetic Movements, 2020, 10, 29.	2.0	35

#	Article	IF	Citations
181	Coronal Plane Stability Before and After Total Knee Arthroplasty. Clinical Orthopaedics and Related Research, 2007, 463, 43-49.	1.5	34
182	Sarcomere lengths in human extensor carpi radialis brevis measured by microendoscopy. Muscle and Nerve, 2013, 48, 286-292.	2.2	34
183	Optogenetic approaches addressing extracellular modulation of neural excitability. Scientific Reports, 2016, 6, 23947.	3.3	34
184	Biceps femoris long head sarcomere and fascicle length adaptations after 3 weeks of eccentric exercise training. Journal of Sport and Health Science, 2022, 11, 43-49.	6.5	34
185	Moment arm and force-generating capacity of the extensor carpi ulnaris after transfer to the extensor carpi radialis brevis. Journal of Hand Surgery, 1999, 24, 1083-1090.	1.6	33
186	Least action principles and their application to constrained and task-level problems in robotics andÂbiomechanics. Multibody System Dynamics, 2008, 19, 303-322.	2.7	33
187	Engineered Myosin VI Motors Reveal Minimal Structural Determinants of Directionality and Processivity. Journal of Molecular Biology, 2009, 392, 862-867.	4.2	33
188	Sensing leg movement enhances wearable monitoring of energy expenditure. Nature Communications, 2021, 12, 4312.	12.8	33
189	Effect of equinus foot placement and intrinsic muscle response on knee extension during stance. Gait and Posture, 2006, 23, 32-36.	1.4	32
190	Optical inhibition of motor nerve and muscle activity <i>in vivo</i>. Muscle and Nerve, 2013, 47, 916-921.	2.2	32
191	Cine Phase-Contrast Magnetic Resonance Imaging As a Tool for Quantification of Skeletal Muscle Motion. Seminars in Musculoskeletal Radiology, 2003, 7, 287-296.	0.7	31
192	Multiecho IDEAL Gradient-Echo Water-Fat Separation for Rapid Assessment of Cartilage Volume at 1.5 T: Initial Experience. Radiology, 2009, 252, 561-567.	7.3	31
193	Contributions of muscles and passive dynamics to swing initiation over a range of walking speeds. Journal of Biomechanics, 2010, 43, 1450-1455.	2.1	31
194	A fast multi-obstacle muscle wrapping method using natural geodesic variations. Multibody System Dynamics, 2016, 36, 195-219.	2.7	31
195	Trochanteric transfer in total hip replacement: Effects on the moment arms and force-generating capacities of the hip abductors. Journal of Orthopaedic Research, 1996, 14, 245-250.	2.3	30
196	Age Influences Biomechanical Changes After Participation in an Anterior Cruciate Ligament Injury Prevention Program. American Journal of Sports Medicine, 2018, 46, 598-606.	4.2	30
197	A neural network to predict the knee adduction moment in patients with osteoarthritis using anatomical landmarks obtainable from 2D video analysis. Osteoarthritis and Cartilage, 2021, 29, 346-356.	1.3	30
198	Estimating the effect size of surgery to improve walking in children with cerebral palsy from retrospective observational clinical data. Scientific Reports, 2018, 8, 16344.	3.3	29

#	Article	IF	Citations
199	Changes in sarcomere lengths of the human vastus lateralis muscle with knee flexion measured using in vivo microendoscopy. Journal of Biomechanics, 2016, 49, 2989-2994.	2.1	28
200	iTools: A Framework for Classification, Categorization and Integration of Computational Biology Resources. PLoS ONE, 2008, 3, e2265.	2.5	27
201	A rolling constraint reproduces ground reaction forces and moments in dynamic simulations of walking, running, and crouch gait. Journal of Biomechanics, 2013, 46, 1772-1776.	2.1	27
202	Biomechanics of the Steindler flexorplasty surgery: a computer simulation study. Journal of Hand Surgery, 2003, 28, 979-986.	1.6	26
203	The Interaction of Compliance and Activation on the Force-Length Operating Range and Force Generating Capacity of Skeletal Muscle: A Computational Study using a Guinea Fowl Musculoskeletal Model. Integrative Organismal Biology, 2019, 1, obz022.	1.8	26
204	The Role of Cartilage Stress in Patellofemoral Pain. Medicine and Science in Sports and Exercise, 2015, 47, 2416-2422.	0.4	25
205	The turning and barrier course reveals gait parameters for detecting freezing of gait and measuring the efficacy of deep brain stimulation. PLoS ONE, 2020, 15, e0231984.	2.5	25
206	Task-level approaches for the control of constrained multibody systems. Multibody System Dynamics, 2006, 16, 73-102.	2.7	24
207	The mobilize center: an NIH big data to knowledge center to advance human movement research and improve mobility. Journal of the American Medical Informatics Association: JAMIA, 2015, 22, 1120-1125.	4.4	24
208	Assessing inertial measurement unit locations for freezing of gait detection and patient preference. Journal of NeuroEngineering and Rehabilitation, 2022, 19, 20.	4.6	24
209	Muscle coordination retraining inspired by musculoskeletal simulations reduces knee contact force. Scientific Reports, 2022, 12, .	3.3	24
210	Analysis of hindlimb muscle moment arms in Tyrannosaurus rex using a three-dimensional musculoskeletal computer model: implications for stance, gait, and speed. Paleobiology, 2005, 31, 676-701.	2.0	23
211	Extending the absorbing boundary method to fit dwell-time distributions of molecular motors with complex kinetic pathways. Proceedings of the National Academy of Sciences of the United States of America, 2007, 104, 3171-3176.	7.1	23
212	New resource for the computation of cartilage biphasic material properties with the interpolant response surface method. Computer Methods in Biomechanics and Biomedical Engineering, 2009, 12, 415-422.	1.6	23
213	Variation of hamstrings lengths and velocities with walking speed. Journal of Biomechanics, 2010, 43, 1522-1526.	2.1	23
214	Rapid energy expenditure estimation for ankle assisted and inclined loaded walking. Journal of NeuroEngineering and Rehabilitation, 2019, 16, 67.	4.6	23
215	Foot strike pattern during running alters muscle-tendon dynamics of the gastrocnemius and the soleus. Scientific Reports, 2020, 10, 5872.	3.3	23
216	Posterior cruciate ligament removal contributes to abnormal knee motion during posterior stabilized total knee arthroplasty. Journal of Orthopaedic Research, 2008, 26, 1494-1499.	2.3	22

#	Article	IF	Citations
217	T1Ï•Dispersion in Articular Cartilage. Cartilage, 2015, 6, 113-122.	2.7	21
218	Learning to Run Challenge: Synthesizing Physiologically Accurate Motion Using Deep Reinforcement Learning. The Springer Series on Challenges in Machine Learning, 2018, , 101-120.	10.4	21
219	Testing Simulated Assistance Strategies on a Hip-Knee-Ankle Exoskeleton: a Case Study. , 2020, , .		20
220	Human soleus sarcomere lengths measured using in vivo microendoscopy at two ankle flexion angles. Journal of Biomechanics, 2016, 49, 4164-4167.	2.1	19
221	Pre-operative gastrocnemius lengths in gait predict outcomes following gastrocnemius lengthening surgery in children with cerebral palsy. PLoS ONE, 2020, 15, e0233706.	2.5	19
222	The use of basis functions in modelling joint articular surfaces: application to the knee joint. Journal of Biomechanics, 2000, 33, 901-907.	2.1	18
223	Magnetic resonance imaging findings after rectus femoris transfer surgery. Skeletal Radiology, 2004, 33, 34-40.	2.0	16
224	Mechanics, modulation and modelling: how muscles actuate and control movement. Philosophical Transactions of the Royal Society B: Biological Sciences, 2011, 366, 1463-1465.	4.0	16
225	Making a meaningful impact: modelling simultaneous frictional collisions in spatial multibody systems. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2015, 471, 20140859.	2.1	16
226	Perspectives on Sharing Models and Related Resources in Computational Biomechanics Research. Journal of Biomechanical Engineering, 2018, 140, .	1.3	16
227	Patellofemoral cartilage stresses are most sensitive to variations in vastus medialis muscle forces. Computer Methods in Biomechanics and Biomedical Engineering, 2019, 22, 206-216.	1.6	16
228	Biomechanical Analysis of the Chiari Pelvic Osteotomy. Clinical Orthopaedics and Related Research, 1990, &NA;, 189???198.	1.5	15
229	Coarse-Grained Structural Modeling of Molecular Motors Using Multibody Dynamics. Cellular and Molecular Bioengineering, 2009, 2, 366-374.	2.1	15
230	Transcutaneous Afferent Patterned Stimulation Therapy Reduces Hand Tremor for One Hour in Essential Tremor Patients. Frontiers in Neuroscience, 2020, 14, 530300.	2.8	14
231	Artificial Intelligence for Prosthetics: Challenge Solutions. The Springer Series on Challenges in Machine Learning, 2020, , 69-128.	10.4	14
232	Coupled exoskeleton assistance simplifies control and maintains metabolic benefits: A simulation study. PLoS ONE, 2022, 17, e0261318.	2.5	14
233	APONEUROSIS LENGTH AND FASCICLE INSERTION ANGLES OF THE BICEPS BRACHII. Journal of Mechanics in Medicine and Biology, 2002, 02, 449-455.	0.7	12
234	Robust Physicsâ€based Motion Retargeting with Realistic Body Shapes. Computer Graphics Forum, 2018, 37, 81-92.	3.0	12

#	Article	IF	Citations
235	A marker registration method to improve joint angles computed by constrained inverse kinematics. PLoS ONE, 2021, 16, e0252425.	2.5	11
236	Non-invasive electrical stimulation of peripheral nerves for the management of tremor. Journal of the Neurological Sciences, 2022, 435, 120195.	0.6	11
237	Reconstruction and EMG-informed control, simulation and analysis of human movement for athletics: Performance improvement and injury prevention. , 2009, 2009, 6534-7.		10
238	The effects of motor modularity on performance, learning and generalizability in upper-extremity reaching: a computational analysis. Journal of the Royal Society Interface, 2020, 17, 20200011.	3.4	10
239	Running in the wild: Energetics explain ecological running speeds. Current Biology, 2022, 32, 2309-2315.e3.	3.9	10
240	Simbios: an NIH national center for physics-based simulation of biological structures. Journal of the American Medical Informatics Association: JAMIA, 2012, 19, 186-189.	4.4	9
241	Rapid volumetric gagCEST imaging of knee articular cartilage at 3 T: evaluation of improved dynamic range and an osteoarthritic population. NMR in Biomedicine, 2020, 33, e4310.	2.8	9
242	High-fidelity musculoskeletal modeling reveals that motor planning variability contributes to the speed-accuracy tradeoff. ELife, 2020, 9, .	6.0	9
243	Sanativo Wound Healing Product Does Not Accelerate Reepithelialization in a Mouse Cutaneous Wound Healing Model. Plastic and Reconstructive Surgery, 2017, 139, 343-352.	1.4	8
244	Dynamic magnetic resonance imaging of muscle function after surgery. Skeletal Radiology, 2006, 35, 885-886.	2.0	7
245	Optogenetic Regeneration. Science, 2014, 344, 44-45.	12.6	7
246	Assessment of Extractability and Accuracy of Electronic Health Record Data for Joint Implant Registries. JAMA Network Open, 2021, 4, e211728.	5.9	7
247	Six weeks of personalized gait retraining to offload the medial compartment of the knee reduces pain more than sham gait retraining. Osteoarthritis and Cartilage, 2019, 27, S28.	1.3	6
248	Microendoscopy detects altered muscular contractile dynamics in a mouse model of amyotrophic lateral sclerosis. Scientific Reports, 2020, 10, 457.	3.3	5
249	Improved Muscle Wrapping Algorithms Using Explicit Path-Error Jacobians. Mechanisms and Machine Science, 2014, , 395-403.	0.5	5
250	Changes in foot progression angle during gait reduce the knee adduction moment and do not increase hip moments in individuals with knee osteoarthritis. Journal of Biomechanics, 2022, 141, 111204.	2.1	5
251	Imaging and Musculoskeletal Modeling to Investigate the Mechanical Etiology of Patellofemoral Pain. , 2011, , 269-286.		4
252	Muscle velocity and inertial force from phase contrast MRI. Journal of Magnetic Resonance Imaging, 2015, 42, 526-532.	3.4	3

#	Article	IF	Citations
253	Open Source Software for Automatic Subregional Assessment of Knee Cartilage Degradation Using Quantitative T2 Relaxometry and Deep Learning. Cartilage, 2021, 13, 747S-756S.	2.7	3
254	Upper Limb Muscle Volumes in Adults. , 2012, , 355-373.		2
255	Gait retraining as a conservative treatment for medial knee osteoarthritis. Osteoarthritis and Cartilage, 2019, 27, S349.	1.3	2
256	GagCEST MRI at 3T can detect cartilage differences between healthy and osteoarthritic subjects. Osteoarthritis and Cartilage, 2019, 27, S355-S356.	1.3	1
257	Digital Humans: From Biomechanical Models to Simulated Surgery. FASEB Journal, 2006, 20, A845.	0.5	1
258	ShortFuse: Biomedical Time Series Representations in the Presence of Structured Information. Proceedings of Machine Learning Research, 2017, 68, 59-74.	0.3	1
259	Muscle Contributions to Medial-Lateral Acceleration of the Body During Walking. , 2009, , .		0
260	Muscle velocity and inertial force from phase contrast MRI. Journal of Magnetic Resonance Imaging, 2015, 42, spcone-spcone.	3.4	0
261	Introduction to NIPS 2017 Competition Track. The Springer Series on Challenges in Machine Learning, 2018, , 1-23.	10.4	0
262	Simulated Exoskeletons with Coupled Degrees-of-Freedom Reduce theÂMetabolic Cost of Walking. Biosystems and Biorobotics, 2022, , 389-393.	0.3	0
263	Architectural Design and Function of Human Back Muscles. , 2011, , 54-69.		0
264	Evaluation of an Algorithm to Detect the First Ventilatory Threshold from Heart Rate. Medicine and Science in Sports and Exercise, 2016, 48, 672-673.	0.4	0
265	Title is missing!. , 2020, 15, e0231984.		0
266	Title is missing!. , 2020, 15, e0231984.		0
267	Title is missing!. , 2020, 15, e0231984.		0
268	Title is missing!. , 2020, 15, e0231984.		0