Alan R Hargens

List of Publications by Year
in descending order

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143 papers	5,783 citations	71102 41 h-index	88630 70 g-index
145 all docs	145 docs citations	145 times ranked	4265 citing authors

#	Article	IF	Citations
1	The NASA Twins Study: A multidimensional analysis of a year-long human spaceflight. Science, 2019, 364, .	12.6	576
2	Long-duration bed rest as an analog to microgravity. Journal of Applied Physiology, 2016, 120, 891-903.	2.5	234
3	Spaceflight-Induced Intracranial Hypertension and Visual Impairment: Pathophysiology and Countermeasures. Physiological Reviews, 2018, 98, 59-87.	28.8	186
4	Cardiovascular adaptations, fluid shifts, and countermeasures related to space flight. Respiratory Physiology and Neurobiology, 2009, 169, S30-S33.	1.6	173
5	Gravitational haemodynamics and oedema prevention in the giraffe. Nature, 1987, 329, 59-60.	27.8	163
6	Assessment of Jugular Venous Blood Flow Stasis and Thrombosis During Spaceflight. JAMA Network Open, 2019, 2, e1915011.	5.9	152
7	Cardiac atrophy in women following bed rest. Journal of Applied Physiology, 2007, 103, 8-16.	2.5	148
8	Wide tourniquet cuffs more effective at lower inflation pressures. Acta Orthopaedica, 1988, 59, 447-451.	1.4	135
9	Skeletal changes during and after spaceflight. Nature Reviews Rheumatology, 2018, 14, 229-245.	8.0	135
10	Space physiology VI: exercise, artificial gravity, and countermeasure development for prolonged space flight. European Journal of Applied Physiology, 2013, 113, 2183-2192.	2.5	127
11	Cardiovascular adaptation to spaceflight. Medicine and Science in Sports and Exercise, 1996, 28, 977-982.	0.4	117
12	Lumbar Spine Disc Height and Curvature Responses to an Axial Load Generated by a Compression Device Compatible with Magnetic Resonance Imaging. Spine, 2001, 26, 2596-2600.	2.0	111
13	Supine lower body negative pressure exercise during bed rest maintains upright exercise capacity. Journal of Applied Physiology, 2000, 89, 218-227.	2.5	107
14	Intramuscular Deoxygenation during Exercise in Patients Who Have Chronic Anterior Compartment Syndrome of the Leg*. Journal of Bone and Joint Surgery - Series A, 1997, 79, 844-9.	3.0	104
15	From the international space station to the clinic: how prolonged unloading may disrupt lumbar spine stability. Spine Journal, 2018, 18, 7-14.	1.3	92
16	Evaluation of Treadmill Exercise in a Lower Body Negative Pressure Chamber as a Countermeasure for Weightlessness-Induced Bone Loss: A Bed Rest Study With Identical Twins. Journal of Bone and Mineral Research, 2003, 18, 2223-2230.	2.8	85
17	Ambulation in simulated fractional gravity using lower body positive pressure: cardiovascular safety and gait analyses. Journal of Applied Physiology, 2006, 101, 771-777.	2.5	84
18	Exercise within lower body negative pressure partially counteracts lumbar spine deconditioning associated with 28-day bed rest. Journal of Applied Physiology, 2005, 99, 39-44.	2.5	83

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19	Near-Infrared Spectroscopy for Monitoring of Tissue Oxygenation of Exercising Skeletal Muscle in a Chronic Compartment Syndrome Model*. Journal of Bone and Joint Surgery - Series A, 1997, 79, 838-43.	3.0	83
20	Lumbar Spine Paraspinal Muscle and Intervertebral Disc Height Changes in Astronauts After Long-Duration Spaceflight on the International Space Station. Spine, 2016, 41, 1917-1924.	2.0	77
21	Disc herniations in astronauts: What causes them, and what does it tell us about herniation on earth?. European Spine Journal, 2016, 25, 144-154.	2.2	77
22	Lower body negative pressure treadmill exercise as a countermeasure for bed rest-induced bone loss in female identical twins. Bone, 2007, 40, 529-537.	2.9	75
23	WISE-2005: Supine treadmill exercise within lower body negative pressure and flywheel resistive exercise as a countermeasure to bed rest-induced bone loss in women during 60-day simulated microgravity. Bone, 2008, 42, 572-581.	2.9	72
24	The Headache of High Altitude and Microgravityâ€"Similarities with Clinical Syndromes of Cerebral Venous Hypertension. High Altitude Medicine and Biology, 2011, 12, 379-386.	0.9	65
25	Leg intramuscular pressures during locomotion in humans. Journal of Applied Physiology, 1998, 84, 1976-1981.	2.5	64
26	A simple method for measuring interstitial fluid pressure in cancer tissues. Microvascular Research, 2005, 70, 116-120.	2.5	64
27	Pathophysiology of Low Back Pain during Exposure to Microgravity. Aviation, Space, and Environmental Medicine, 2008, 79, 365-373.	0.5	64
28	WISE-2005: effect of aerobic and resistive exercises on orthostatic tolerance during 60Âdays bed rest in women. European Journal of Applied Physiology, 2009, 106, 217-227.	2.5	59
29	The ratio of animal protein intake to potassium intake is a predictor of bone resorption in space flight analogues and in ambulatory subjects. American Journal of Clinical Nutrition, 2004, 80, 1058-1065.	4.7	58
30	The Effect of Backpacks on the Lumbar Spine in Children. Spine, 2010, 35, 83-88.	2.0	58
31	Ground-Based Analogs for Human Spaceflight. Frontiers in Physiology, 2020, 11, 716.	2.8	54
32	Lower body negative pressure exercise plus brief postexercise lower body negative pressure improve post-bed rest orthostatic tolerance. Journal of Applied Physiology, 2007, 103, 1964-1972.	2.5	51
33	Postoperative Imaging of Bioabsorbable Anchors in Rotator Cuff Repair. American Journal of Sports Medicine, 2014, 42, 552-557.	4.2	51
34	Lower Body Positive-pressure Exercise after Knee Surgery. Clinical Orthopaedics and Related Research, 2005, 431, 213-219.	1.5	50
35	Upright exercise or supine lower body negative pressure exercise maintains exercise responses after bed rest. Medicine and Science in Sports and Exercise, 1997, 29, 892-900.	0.4	49
36	Comparing two devices of suspended treadmill walking by varying body unloading and Froude number. Gait and Posture, 2009, 30, 446-451.	1.4	48

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37	Intraocular/Intracranial Pressure Mismatch Hypothesis for Visual Impairment Syndrome in Space. Aviation, Space, and Environmental Medicine, 2014, 85, 78-80.	0.5	47
38	Noninvasive Measurements of Intramuscular Pressure Using Pulsed Phase-locked Loop Ultrasound for Detecting Compartment Syndromes. Journal of Orthopaedic Trauma, 2006, 20, 458-463.	1.4	45
39	WISE-2005: Countermeasures to prevent muscle deconditioning during bed rest in women. Journal of Applied Physiology, 2014, 116, 654-667.	2.5	45
40	Supine LBNP Exercise Maintains Exercise Capacity in Male Twins during 30-d Bed Rest. Medicine and Science in Sports and Exercise, 2007, 39, 1315-1326.	0.4	44
41	WISE-2005. Medicine and Science in Sports and Exercise, 2009, 41, 2165-2176.	0.4	43
42	Supine lower body negative pressure exercise simulates metabolic and kinetic features of upright exercise. Journal of Applied Physiology, 2000, 89, 649-654.	2.5	42
43	Intramuscular pressure and EMG relate during static contractions but dissociate with movement and fatigue. Journal of Applied Physiology, 2004, 96, 1522-1529.	2.5	42
44	Maximizing information from space data resources: a case for expanding integration across research disciplines. European Journal of Applied Physiology, 2013, 113, 1645-1654.	2.5	42
45	Effect of Load Carriage on Lumbar Spine Kinematics. Spine, 2013, 38, E783-E791.	2.0	41
46	Asymmetric Loads and Pain Associated With Backpack Carrying by Children. Journal of Pediatric Orthopaedics, 2008, 28, 512-517.	1.2	40
47	LBNP exercise protects aerobic capacity and sprint speed of female twins during 30 days of bed rest. Journal of Applied Physiology, 2009, 106, 919-928.	2.5	40
48	Fifteen days of microgravity causes growth in calvaria of mice. Bone, 2013, 56, 290-295.	2.9	39
49	Effect of microgravity on the biomechanical properties of lumbar and caudal intervertebral discs in mice. Journal of Biomechanics, 2014, 47, 2983-2988.	2.1	39
50	Intraocular and Intracranial Pressures During Head-Down Tilt with Lower Body Negative Pressure. Aviation, Space, and Environmental Medicine, 2015, 86, 3-7.	0.5	39
51	LBNP treadmill exercise maintains spine function and muscle strength in identical twins during 28-day simulated microgravity. Journal of Applied Physiology, 2007, 102, 2274-2278.	2.5	38
52	Ultrasonic device for the noninvasive diagnosis of compartment syndrome. Physiological Measurement, 2004, 25, N1-N9.	2.1	36
53	A new ?transducer-tipped? fiber optic catheter for measuring intramuscular pressures. Journal of Orthopaedic Research, 1990, 8, 464-468.	2.3	35
54	Lower-body negative-pressure exercise and bed-rest???mediated orthostatic intolerance. Medicine and Science in Sports and Exercise, 2002, 34, 1446-1453.	0.4	35

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55	Use of Tissue Ultrafiltration for Treatment of Compartment Syndrome. Journal of Orthopaedic Trauma, 2005, 19, 267-275.	1.4	35
56	Human cutaneous vascular responses to whole-body tilting, Gzcentrifugation, and LBNP. Journal of Applied Physiology, 2004, 96, 2153-2160.	2.5	35
57	Spaceflightâ€induced bone loss alters failure mode and reduces bending strength in murine spinal segments. Journal of Orthopaedic Research, 2016, 34, 48-57.	2.3	34
58	Normal transcapillary pressures in human skeletal muscle and subcutaneous tissues. Microvascular Research, 1981, 22, 177-189.	2.5	32
59	Fluid shifts in vascular and extravascular spaces during and after simulated weightlessness. Medicine and Science in Sports and Exercise, 1983, 15, 421???427.	0.4	31
60	Using the Moon as a high-fidelity analogue environment to study biological and behavioral effects of long-duration space exploration. Planetary and Space Science, 2012, 74, 111-120.	1.7	30
61	WISE 2005: Aerobic and resistive countermeasures prevent paraspinal muscle deconditioning during 60-day bed rest in women. Journal of Applied Physiology, 2016, 120, 1215-1222.	2.5	30
62	Lower-body negative pressure decreases noninvasively measured intracranial pressure and internal jugular vein cross-sectional area during head-down tilt. Journal of Applied Physiology, 2017, 123, 260-266.	2.5	29
63	Renal Stone Risk in a Simulated Microgravity Environment: Impact of Treadmill Exercise With Lower Body Negative Pressure. Journal of Urology, 2006, 176, 127-131.	0.4	28
64	Movement-Induced Knot Migration After Anterior Stabilization in the Shoulder. Arthroscopy - Journal of Arthroscopic and Related Surgery, 2013, 29, 485-490.	2.7	28
65	Wavelet packet transform for R-R interval variability. Medical Engineering and Physics, 2004, 26, 313-319.	1.7	27
66	Genetic Heritability of Urinary Stone Risk in Identical Twins. Journal of Urology, 2006, 175, 2125-2128.	0.4	27
67	Photoplethysmography for non-invasivein vivomeasurement of bone hemodynamics. Physiological Measurement, 2012, 33, 1027-1042.	2.1	27
68	Noninvasive Measurement of Pulsatile Intracranial Pressure Using Ultrasound. , 1998, 71, 66-69.		26
69	Ischemic-preconditioning does not prevent neuromuscular dysfunction after ischemiaâ€“reperfusion injury. Journal of Orthopaedic Research, 2004, 22, 918-923.	2.3	25
70	New Noninvasive Ultrasound Technique for Monitoring Perfusion Pressure in a Porcine Model of Acute Compartment Syndrome. Journal of Orthopaedic Trauma, 2009, 23, 186-192.	1.4	24
71	Heritability of bone density: Regional and gender differences in monozygotic twins. Journal of Orthopaedic Research, 2009, 27, 150-154.	2.3	23
72	Axial loadâ€"dependent cervical spinal alterations during simulated upright posture: a comparison of healthy controls and patients with cervical degenerative disease. Journal of Neurosurgery: Spine, 2005, 2, 137-144.	1.7	22

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73	Oxygen Consumption During Walking and Running Under Fractional Weight Bearing Conditions. Aviation, Space, and Environmental Medicine, 2010, 81, 550-554.	0.5	22
74	Muscle Microvascular Blood Flow, Oxygenation, pH, and Perfusion Pressure Decrease in Simulated Acute Compartment Syndrome. Journal of Bone and Joint Surgery - Series A, 2017, 99, 1453-1459.	3.0	22
75	Space Exercise and Earth Benefits. Current Pharmaceutical Biotechnology, 2005, 6, 305-317.	1.6	21
76	Noninvasive monitoring of elevated intramuscular pressure in a model compartment syndrome via quantitative fascial motion. Journal of Orthopaedic Research, 2009, 27, 489-494.	2.3	21
77	Intraocular pressure and choroidal thickness respond differently to lower body negative pressure during spaceflight. Journal of Applied Physiology, 2021, 131, 613-620.	2.5	21
78	Comparison of cardiovascular and biomechanical parameters of supine lower body negative pressure and upright lower body positive pressure to simulate activity in 1/6 G and 3/8 G. Journal of Applied Physiology, 2013, 115, 275-284.	2.5	20
79	High Contact Pressure Beneath Backpack Straps of Children Contributes to Pain. JAMA Pediatrics, 2005, 159, 1186.	3.0	19
80	Upper extremity hemodynamics and sensation with backpack loads. Applied Ergonomics, 2014, 45, 608-612.	3.1	19
81	Body posture and backpack loading: an upright magnetic resonance imaging study of the adult lumbar spine. European Spine Journal, 2014, 23, 1407-1413.	2.2	18
82	Thirty days of spaceflight does not alter murine calvariae structure despite increased Sost expression. Bone Reports, 2017, 7, 57-62.	0.4	18
83	Noninvasive assessment of intracranial pressure waveforms by using pulsed phase lock loop technology. Journal of Neurosurgery, 2005, 103, 361-367.	1.6	17
84	Richard von Volkmann. Clinical Orthopaedics and Related Research, 2008, 466, 500-506.	1.5	17
85	Depth of penetration of negative pressure wound therapy into underlying tissues. Wound Repair and Regeneration, 2009, 17, 113-117.	3.0	17
86	Leg intramuscular pressures and in vivo knee forces during lower body positive and negative pressure treadmill exercise. Journal of Applied Physiology, 2012, 113, 31-38.	2.5	17
87	Sexâ€specific responses of bone metabolism and renal stone risk during bed rest. Physiological Reports, 2014, 2, e12119.	1.7	17
88	Effects of dynamic and static handgrip exercises on hand and wrist volume. European Journal of Applied Physiology, 2008, 103, 41-45.	2.5	16
89	Treadmill exercise within lower-body negative pressure attenuates simulated spaceflight-induced reductions of balance abilities in men but not women. Npj Microgravity, 2016, 2, 16022.	3.7	16
90	Noninvasive diagnostics for extremity compartment syndrome following traumatic injury: A state-of-the-art review. Journal of Trauma and Acute Care Surgery, 2019, 87, S59-S66.	2.1	16

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91	Loop Securities of Arthroscopic Sliding-Knot Techniques When the Suture Loop Is Not Evenly Tensioned. Arthroscopy - Journal of Arthroscopic and Related Surgery, 2013, 29, 1380-1386.	2.7	15
92	Lower-body negative pressure restores leg bone microvascular flow to supine levels during head-down tilt. Journal of Applied Physiology, 2015, 119, 101-109.	2.5	15
93	Mechanical countermeasures to headward fluid shifts. Journal of Applied Physiology, 2021, 130, 1766-1777.	2.5	15
94	Lumbar spine disc heights and curvature: upright posture vs. supine compression harness. Aviation, Space, and Environmental Medicine, 2003, 74, 512-6.	0.5	15
95	Bone hemodynamic responses to changes in external pressure. Bone, 2013, 52, 604-610.	2.9	14
96	Altered Disc Compression in Children With Idiopathic Low Back Pain. Spine, 2014, 39, 243-248.	2.0	14
97	Cranial diameter pulsations measured by non-invasive ultrasound decrease with tilt. Aviation, Space, and Environmental Medicine, 2003, 74, 882-5.	0.5	14
98	Changes in Optic Nerve Head and Retinal Morphology During Spaceflight and Acute Fluid Shift Reversal. JAMA Ophthalmology, 2022, 140, 763.	2.5	14
99	The effect of simulated microgravity on lumbar spine biomechanics: an in vitro study. European Spine Journal, 2016, 25, 2889-2897.	2.2	13
100	Biomechanical changes in the lumbar spine following spaceflight and factors associated with postspaceflight disc herniation. Spine Journal, 2022, 22, 197-206.	1.3	13
101	Acute Cutaneous Microvascular Flow Responses to Whole-Body Tilting in Humans. Microvascular Research, 1993, 46, 351-358.	2.5	12
102	Treadmill exercise within lower body negative pressure protects leg lean tissue mass and extensor strength and endurance during bed rest. Physiological Reports, 2016, 4, e12892.	1.7	11
103	Paraspinal Muscle Vasculature Contributes to Posterolateral Spinal Fusion. Spine, 2006, 31, 891-896.	2.0	10
104	Mobility of the Elastic Counterpressure Space Suit Glove. Aviation, Space, and Environmental Medicine, 2009, 80, 890-893.	0.5	9
105	Gender differences in tibial microvascular flow responses to head down tilt and lower body negative pressure. Physiological Reports, 2017, 5, e13143.	1.7	9
106	The Mobile Lower Body Negative Pressure Gravity Suit for Long-Duration Spaceflight. Frontiers in Physiology, 2020, 11, 977.	2.8	9
107	Shoulder skin and muscle hemodynamics during backpack carriage. Applied Ergonomics, 2015, 51, 80-84.	3.1	8
108	Bone microvascular flow differs from skin microvascular flow in response to head-down tilt. Journal of Applied Physiology, 2017, 123, 860-866.	2.5	8

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109	Bruxism and Temporal Bone Hypermobility in Patients with Multiple Sclerosis. Cranio - Journal of Craniomandibular Practice, 2011, 29, 178-186.	1.4	7
110	Tibia Bone Microvascular Flow Dynamics as Compared to Anterior Tibial Artery Flow During Body Tilt. Aerospace Medicine and Human Performance, 2018, 89, 357-364.	0.4	6
111	System for determination of ultrasonic wave speeds and their temperature dependence in liquids and in vitro tissues. Journal of the Acoustical Society of America, 2005, 117, 646-652.	1.1	5
112	Inelastic Compression Legging Produces Gradient Compression and Significantly Higher Skin Surface Pressures Compared with an Elastic Compression Stocking. Vascular, 2008, 16, 25-30.	0.9	5
113	Cardiovascular, Lymphatic, and Ocular Health in Space. Life, 2022, 12, 268.	2.4	5
114	Noninvasive Measurements of Pressure for Detecting Compartment Syndromes. Journal of Orthopedics & Rheumatology, 2013, 1, 5.	0.1	4
115	Toe Blood Pressure and Leg Muscle Oxygenation with Body Posture. Aviation, Space, and Environmental Medicine, 2011, 82, 531-534.	0.5	3
116	Increased microvascular flow and foot sensation with mild continuous external compression. Physiological Reports, 2013, 1, e00157.	1.7	3
117	Accuracy of Water Displacement Hand Volumetry Using an Ethanol and Water Mixture. Aviation, Space, and Environmental Medicine, 2014, 85, 187-190.	0.5	3
118	Intracranial Pressure After Soccer Heading. FASEB Journal, 2020, 34, 1-1.	0.5	3
119	Intramuscular Pressures in Antigravity Muscles Using Gravity-Independent, Pneumatic Hardware. Aviation, Space, and Environmental Medicine, 2008, 79, 749-753.	0.5	2
120	Anterior-Posterior Transcranial Ultrasound to Measure Cranial Oscillations. Aviation, Space, and Environmental Medicine, 2013, 84, 995-1000.	0.5	2
121	Cerebrovascular Effects of Lower Body Negative Pressure at 3T MRI : Implications for Longâ€Duration Space Travel. Journal of Magnetic Resonance Imaging, 2022, , .	3.4	2
122	Rhythmic contractility in the hepatic portal â€œcorkscrewâ€•vein of the rat snake. Comparative Biochemistry and Physiology Part A, Molecular & Integrative Physiology, 2009, 152, 389-397.	1.8	1
123	Aging Decreases Hand Volume Expansion with Water Immersion. Frontiers in Physiology, 2018, 9, 72.	2.8	1
124	The Effects of Resistance Exercise on Intracranial Pressure. FASEB Journal, 2018, 32, 587.8.	0.5	1
125	Using hierarchical unsupervised learning to integrate and reduce multi-level and multi-paraspinal muscle MRI data in relation to low back pain. European Spine Journal, 2022, 31, 2046-2056.	2.2	1
126	Spaceflight-Associated Vascular Remodeling and Gene Expression in Mouse Calvaria. Frontiers in Physiology, 2022, 13, .	2.8	1

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127	Introduction to Visual Impairment and Intracranial Pressure. , 2017, , 1-3.		0
128	Reduced Gravity by Lower Body Positive Pressure. , 2021, , 479-488.		0
129	Parabolic Flight. , 2021, , 489-498.		0
130	Generating waist area-dependent ground reaction forces for long-duration spaceflight. Journal of Biomechanics, 2021, 118, 110272.	2.1	0
131	Tibialis anterior muscle oxygenation during lower body pressure. FASEB Journal, 2006, 20, A805.	0.5	0
132	Mild external compression of the leg increases muscle blood flow and oxygenation. FASEB Journal, 2006, 20, .	0.5	0
133	Backpack straps decrease upper extremity blood flow. FASEB Journal, 2008, 22, 957.28.	0.5	0
134	Hypergravity exercise training on a humanâ€powered centrifuge. FASEB Journal, 2008, 22, 752.7.	0.5	0
135	Blood Flow and Oxygenation are Modulated by External Pressure during Isometric Muscle Contraction. FASEB Journal, 2011, 25, 1046.2.	0.5	0
136	Modeling Intracranial Pressure in Microgravity during Parabolic Flight. FASEB Journal, 2012, 26, 1085.11.	0.5	0
137	Body position and backpack loading: an upright magnetic resonance imaging study of the adult lumbar spine. FASEB Journal, 2013, 27, lb778.	0.5	0
138	Lower Body Negative Pressure Counters Internal Jugular Vein Engorgement during Simulated Microgravity. FASEB Journal, 2015, 29, 990.9.	0.5	0
139	Lumbar Paraspinal Muscle Atrophy during Long Duration Spaceflight. FASEB Journal, 2015, 29, 990.4.	0.5	0
140	Cerebral Vascular Changes in Space Mice Calvaria. FASEB Journal, 2015, 29, 990.8.	0.5	0
141	OSTEOPOROSIS, CIRCULATION, AND FLUID DYNAMICS. , 2016, , 253-282.		0
142	Parabolic Flight. , 2020, , 1-8.		0
143	Parabolic Flight. , 2020, , 1-8.		0