Clinton T Rubin

List of Publications by Year
in descending order

130 papers	13,916 citations	19657 61 h-index	20961 115 g-index
133 all docs	133 docs citations	133 times ranked	8175 citing authors

#	Article	IF	Citations
1	Regulation of bone mass by mechanical strain magnitude. Calcified Tissue International, 1985, 37, 411-417.	3.1	1,138
2	Low mechanical signals strengthen long bones. Nature, 2001, 412, 603-604.	27.8	647
3	Osteoregulatory nature of mechanical stimuli: Function as a determinant for adaptive remodeling in bone. Journal of Orthopaedic Research, 1987, 5, 300-310.	2.3	466
4	Prevention of Postmenopausal Bone Loss by a Low-Magnitude, High-Frequency Mechanical Stimuli: A Clinical Trial Assessing Compliance, Efficacy, and Safety. Journal of Bone and Mineral Research, 2003, 19, 343-351.	2.8	457
5	Molecular pathways mediating mechanical signaling in bone. Gene, 2006, 367, 1-16.	2.2	406
6	Dynamic strain similarity in vertebrates; an alternative to allometric limb bone scaling. Journal of Theoretical Biology, 1984, 107, 321-327.	1.7	393
7	Mechanical signals as anabolic agents in bone. Nature Reviews Rheumatology, 2010, 6, 50-59.	8.0	368
8	Low Magnitude Mechanical Loading Is Osteogenic in Children With Disabling Conditions. Journal of Bone and Mineral Research, 2004, 19, 360-369.	2.8	353
9	Quantifying the strain history of bone: spatial uniformity and self-similarity of low-magnitude strains. Journal of Biomechanics, 2000, 33, 317-325.	2.1	334
10	Mechanical regulation of signaling pathways in bone. Gene, 2012, 503, 179-193.	2.2	334
11	Low-Level, High-Frequency Mechanical Signals Enhance Musculoskeletal Development of Young Women With Low BMD. Journal of Bone and Mineral Research, 2006, 21, 1464-1474.	2.8	299
12	Quantity and Quality of Trabecular Bone in the Femur Are Enhanced by a Strongly Anabolic, Noninvasive Mechanical Intervention. Journal of Bone and Mineral Research, 2002, 17, 349-357.	2.8	266
13	Mechanical Strain Inhibits Adipogenesis in Mesenchymal Stem Cells by Stimulating a Durable Î²-Catenin Signal. Endocrinology, 2008, 149, 6065-6075.	2.8	257
14	The anabolic activity of bone tissue, suppressed by disuse, is normalized by brief exposure to extremely lowâ€magnitude mechanical stimuli. FASEB Journal, 2001, 15, 2225-2229.	0.5	251
15	Low-magnitude mechanical signals that stimulate bone formation in the ovariectomized rat are dependent on the applied frequency but not on the strain magnitude. Journal of Biomechanics, 2007, 40, 1333-1339.	2.1	251
16	Suppression of the osteogenic response in the aging skeleton. Calcified Tissue International, 1992, 50, 306-313.	3.1	232
17	Mechanical Stimulation of Mesenchymal Stem Cell Proliferation and Differentiation Promotes Osteogenesis While Preventing Dietary-Induced Obesity. Journal of Bone and Mineral Research, 2009, 24, 50-61.	2.8	232
18	Transcriptional Profiling of Bone Regeneration. Journal of Biological Chemistry, 2002, 277, 30177-30182.	3.4	230

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19	Low-level mechanical vibrations can influence bone resorption and bone formation in the growing skeleton. Bone, 2006, 39, 1059-1066.	2.9	218
20	Strain Gradients Correlate with Sites of Periosteal Bone Formation. Journal of Bone and Mineral Research, 1997, 12, 982-988.	2.8	203
21	Nonlinear dependence of loading intensity and cycle number in the maintenance of bone mass and morphology. Journal of Orthopaedic Research, 1998, 16, 482-489.	2.3	198
22	Fluid pressure gradients, arising from oscillations in intramedullary pressure, is correlated with the formation of bone and inhibition of intracortical porosity. Journal of Biomechanics, 2003, 36, 1427-1437.	2.1	191
23	Transmissibility of 15-Hertz to 35-Hertz Vibrations to the Human Hip and Lumbar Spine: Determining the Physiologic Feasibility of Delivering Low-Level Anabolic Mechanical Stimuli to Skeletal Regions at Greatest Risk of Fracture Because of Osteoporosis. Spine, 2003, 28, 2621-2627.	2.0	178
24	Interrelationship of trabecular mechanical and microstructural properties in sheep trabecular bone. Journal of Biomechanics, 2005, 38, 1229-1237.	2.1	158
25	Mechanical signal influence on mesenchymal stem cell fate is enhanced by incorporation of refractory periods into the loading regimen. Journal of Biomechanics, 2011, 44, 593-599.	2.1	140
26	Combating osteoporosis and obesity with exercise: leveraging cell mechanosensitivity. Nature Reviews Endocrinology, 2019, 15, 339-355.	9.6	140
27	Mechanically induced calcium waves in articular chondrocytes are inhibited by gadolinium and amiloride. Journal of Orthopaedic Research, 1999, 17, 421-429.	2.3	139
28	Genetic predisposition to low bone mass is paralleled by an enhanced sensitivity to signals anabolic to the skeleton. FASEB Journal, 2002, 16, 1280-1282.	0.5	138
29	Low-level accelerations applied in the absence of weight bearing can enhance trabecular bone formation. Journal of Orthopaedic Research, 2007, 25, 732-740.	2.3	136
30	Patterns of strain in the macaque tibia during functional activity. American Journal of Physical Anthropology, 2001, 116, 257-265.	2.1	135
31	Enhancement of the adolescent murine musculoskeletal system using low-level mechanical vibrations. Journal of Applied Physiology, 2008, 104, 1056-1062.	2.5	135
32	Toward an identification of mechanical parameters initiating periosteal remodeling: A combined experimental and analytic approach. Journal of Biomechanics, 1990, 23, 893-905.	2.1	131
33	Inhibition of osteopenia by low magnitude, high-frequency mechanical stimuli. Drug Discovery Today, 2001, 6, 848-858.	6.4	129
34	Genetically Based Influences on the Site-Specific Regulation of Trabecular and Cortical Bone Morphology. Journal of Bone and Mineral Research, 2004, 19, 600-606.	2.8	127
35	Mechanical Loading Regulates NFATc1 and Î²-Catenin Signaling through a GSK3Î² Control Node. Journal of Biological Chemistry, 2009, 284, 34607-34617.	3.4	125
36	Bone marrow fat accumulation accelerated by high fat diet is suppressed by exercise. Bone, 2014, 64, 39-46.	2.9	124

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37	Cell Mechanosensitivity to Extremely Low-Magnitude Signals Is Enabled by a LINCed Nucleus. Stem Cells, 2015, 33, 2063-2076.	3.2	122
38	Patterns of strain in the macaque ulna during functional activity. American Journal of Physical Anthropology, 1998, 106, 87-100.	2.1	117
39	Differentiation of the Bone-Tissue Remodeling Response to Axial and Torsional Loading in the Turkey Ulna*â€. Journal of Bone and Joint Surgery - Series A, 1996, 78, 1523-33.	3.0	111
40	Genetically Linked Site-Specificity of Disuse Osteoporosis. Journal of Bone and Mineral Research, 2004, 19, 607-613.	2.8	110
41	Gap Junctional Intercellular Communication Contributes to Hormonal Responsiveness in Osteoblastic Networks. Journal of Biological Chemistry, 1996, 271, 12165-12171.	3.4	107
42	Obesity-driven disruption of haematopoiesis and the bone marrow niche. Nature Reviews Endocrinology, 2014, 10, 737-748.	9.6	104
43	Temporal Expression of the Chondrogenic and Angiogenic Growth Factor CYR61 During Fracture Repair. Journal of Bone and Mineral Research, 2000, 15, 1014-1023.	2.8	100
44	Consequences of irradiation on bone and marrow phenotypes, and its relation to disruption of hematopoietic precursors. Bone, 2014, 63, 87-94.	2.9	100
45	Low-Level Vibrations Retain Bone Marrow's Osteogenic Potential and Augment Recovery of Trabecular Bone during Reambulation. PLoS ONE, 2010, 5, e11178.	2.5	100
46	Pressure regulates osteoclast formation and MCSF expression in marrow culture. Journal of Cellular Physiology, 1997, 170, 81-87.	4.1	93
47	Low-level mechanical signals and their potential as a non-pharmacological intervention for osteoporosis. Age and Ageing, 2006, 35, ii32-ii36.	1.6	91
48	Morphologie stages in lamellar bone formation stimulated by a potent mechanical stimulus. Journal of Bone and Mineral Research, 1995, 10, 488-495.	2.8	90
49	The Pathway of Bone Fluid Flow as Defined by In Vivo Intramedullary Pressure and Streaming Potential Measurements. Annals of Biomedical Engineering, 2002, 30, 693-702.	2.5	89
50	Adaptations of Trabecular Bone to Low Magnitude Vibrations Result in More Uniform Stress and Strain Under Load. Annals of Biomedical Engineering, 2003, 31, 12-20.	2.5	84
51	Devastation of adult stem cell pools by irradiation precedes collapse of trabecular bone quality and quantity. Journal of Bone and Mineral Research, 2012, 27, 749-759.	2.8	84
52	Lowâ€magnitude highâ€frequency mechanical signals accelerate and augment endochondral bone repair: Preliminary evidence of efficacy. Journal of Orthopaedic Research, 2009, 27, 922-930.	2.3	82
53	Exercise Decreases Marrow Adipose Tissue Through ÃŸ-Oxidation in Obese Running Mice. Journal of Bone and Mineral Research, 2017, 32, 1692-1702.	2.8	78
54	Uniformity of resorptive bone loss induced by disuse. Journal of Orthopaedic Research, 1995, 13, 708-714.	2.3	77

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55	Combining high-resolution micro-computed tomography with material composition to define the quality of bone tissue. Current Osteoporosis Reports, 2003, 1, 11-19.	3.6	76
56	Electric fields modulate bone cell function in a density-dependent manner. Journal of Bone and Mineral Research, 1993, 8, 977-984.	2.8	75
57	Mechanically Induced Focal Adhesion Assembly Amplifies Anti-Adipogenic Pathways in Mesenchymal Stem Cells. Stem Cells, 2011, 29, 1829-1836.	3.2	71
58	Safety and severity of accelerations delivered from whole body vibration exercise devices to standing adults. Journal of Science and Medicine in Sport, 2013, 16, 526-531.	1.3	69
59	Chondrocytes isolated from mature articular cartilage retain the capacity to form functional gap junctions. Journal of Bone and Mineral Research, 1995, 10, 1359-1364.	2.8	66
60	Small Oscillatory Accelerations, Independent of Matrix Deformations, Increase Osteoblast Activity and Enhance Bone Morphology. PLoS ONE, 2007, 2, e653.	2.5	65
61	High Fat Diet Rapidly Suppresses B Lymphopoiesis by Disrupting the Supportive Capacity of the Bone Marrow Niche. PLoS ONE, 2014, 9, e90639.	2.5	65
62	Short applications of very low-magnitude vibrations attenuate expansion of the intervertebral disc during extended bed rest. Spine Journal, 2009, 9, 470-477.	1.3	63
63	Testing the daily stress stimulus theory of bone adaptation with natural and experimentally controlled strain histories. Journal of Biomechanics, 1997, 30, 671-678.	2.1	62
64	Dynamic Parameters of Balance Which Correlate to Elderly Persons with a History of Falls. PLoS ONE, 2013, 8, e70566.	2.5	60
65	Frequency specific modulation of bone adaptation by induced electric fields. Journal of Theoretical Biology, 1990, 145, 385-396.	1.7	58
66	Bone structure and Bâ€cell populations, crippled by obesity, are partially rescued by brief daily exposure to lowâ€magnitude mechanical signals. FASEB Journal, 2012, 26, 4855-4863.	0.5	56
67	The Potential Benefits and Inherent Risks of Vibration as a Non-Drug Therapy for the Prevention and Treatment of Osteoporosis. Current Osteoporosis Reports, 2013, 11, 36-44.	3.6	56
68	Whole-body vibration in the skeleton: Development of a resonance-based testing device. Annals of Biomedical Engineering, 1997, 25, 831-839.	2.5	55
69	Mechanical modulation of molecular signals which regulate anabolic and catabolic activity in bone tissue. Journal of Cellular Biochemistry, 2005, 94, 982-994.	2.6	54
70	Evaluation of trabecular mechanical and microstructural properties in human calcaneal bone of advanced age using mechanical testing, Î¼CT, and DXA. Journal of Biomechanics, 2008, 41, 368-375.	2.1	52
71	Exercise Regulation of Marrow Fat in the Setting of PPARÎ³ Agonist Treatment in Female C57BL/6 Mice. Endocrinology, 2015, 156, 2753-2761.	2.8	52
72	Associations of Computed Tomography-Based Trunk Muscle Size and Density With Balance and Falls in Older Adults. Journals of Gerontology - Series A Biological Sciences and Medical Sciences, 2016, 71, 811-816.	3.6	50

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73	Postural instability caused by extended bed rest is alleviated by brief daily exposure to low magnitude mechanical signals. Gait and Posture, 2011, 33, 429-435.	1.4	49
74	Formation of osteoclast-like cells is suppressed by low frequency, low intensity electric fields. Journal of Orthopaedic Research, 1996, 14, 7-15.	2.3	48
75	Low-Magnitude Mechanical Stimulation to Improve Bone Density in Persons of Advanced Age: A Randomized, Placebo-Controlled Trial. Journal of Bone and Mineral Research, 2015, 30, 1319-1328.	2.8	48
76	Genetic variations that regulate bone morphology in the male mouse skeleton do not define its susceptibility to mechanical unloading. Bone, 2004, 35, 1353-1360.	2.9	47
77	Separating Fluid Shear Stress from Acceleration during Vibrations In Vitro: Identification of Mechanical Signals Modulating the Cellular Response. Cellular and Molecular Bioengineering, 2012, 5, 266-276.	2.1	45
78	High-frequency, low-magnitude vibrations suppress the number of blood vessels per muscle fiber in mouse soleus muscle. Journal of Applied Physiology, 2005, 98, 2376-2380.	2.5	44
79	Low magnitude and high frequency mechanical loading prevents decreased bone formation responses of 2T3 preosteoblasts. Journal of Cellular Biochemistry, 2009, 106, 306-316.	2.6	44
80	Cell Mechanosensitivity Is Enabled by the LINC Nuclear Complex. Current Molecular Biology Reports, 2016, 2, 36-47.	1.6	41
81	Correlation of bony ingrowth to the distribution of stress and strain parameters surrounding a porous-coated implant. Journal of Orthopaedic Research, 1996, 14, 862-870.	2.3	39
82	Altered Composition of Bone as Triggered by Irradiation Facilitates the Rapid Erosion of the Matrix by Both Cellular and Physicochemical Processes. PLoS ONE, 2013, 8, e64952.	2.5	39
83	Low magnitude mechanical signals mitigate osteopenia without compromising longevity in an aged murine model of spontaneous granulosa cell ovarian cancer. Bone, 2012, 51, 570-577.	2.9	38
84	Low intensity vibration mitigates tumor progression and protects bone quantity and quality in a murine model of myeloma. Bone, 2016, 90, 69-79.	2.9	38
85	Brief daily exposure to low-intensity vibration mitigates the degradation of the intervertebral disc in a frequency-specific manner. Journal of Applied Physiology, 2011, 111, 1846-1853.	2.5	37
86	Functional Adaptation to Loading of a Single Bone Is Neuronally Regulated and Involves Multiple Bones. Journal of Bone and Mineral Research, 2008, 23, 1369-1371.	2.8	36
87	Skeletal Cell Stresses and Bone Adaptation. American Journal of the Medical Sciences, 1998, 316, 176-183.	1.1	36
88	Experimental Colitis Impairs Linear Bone Growth Independent of Nutritional Factors. Journal of Pediatric Gastroenterology and Nutrition, 1997, 25, 137-141.	1.8	36
89	Ultrasonic measurement of immobilization-induced osteopenia: An experimental study in sheep. Calcified Tissue International, 1988, 42, 309-312.	3.1	35
90	Metabolic modulation of disuse osteopenia: Endocrine-dependent site specificity of bone remodeling. Journal of Bone and Mineral Research, 1990, 5, 1069-1075.	2.8	34

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91	Focal enhancement of the skeleton to exercise correlates to mesenchymal stem cell responsivity rather than peak external forces. Journal of Experimental Biology, 2015, 218, 3002-9.	1.7	34
92	Effect of Low-Magnitude Mechanical Stimuli on Bone Density and Structure in Pediatric Crohn's Disease: A Randomized Placebo-Controlled Trial. Journal of Bone and Mineral Research, 2016, 31, 1177-1188.	2.8	32
93	Ultrasonic Wave Propagation in Trabecular Bone Predicted by the Stratified Model. Annals of Biomedical Engineering, 2001, 29, 781-790.	2.5	30
94	Differential Expression of Neuroleukin in Osseous Tissues and Its Involvement in Mineralization During Osteoblast Differentiation. Journal of Bone and Mineral Research, 2001, 16, 1994-2004.	2.8	29
95	Establishing the compliance in elderly women for use of a low level mechanical stress device in a clinical osteoporosis study. Osteoporosis International, 2004, 15, 918-926.	3.1	28
96	Mechanical signals as a non-invasive means to influence mesenchymal stem cell fate, promoting bone and suppressing the fat phenotype. IBMS BoneKEy, 2009, 6, 132-149.	0.0	28
97	Transmission of low-intensity vibration through the axial skeleton of persons with spinal cord injury as a potential intervention for preservation of bone quantity and quality. Journal of Spinal Cord Medicine, 2011, 34, 52-59.	1.4	28
98	A reduced-modulus acrylic bone cement: Preliminary results. Journal of Orthopaedic Research, 1990, 8, 623-626.	2.3	27
99	Cement Line Staining in Undecalcified Thin Sections of Cortical Bone. Biotechnic & Histochemistry, 1990, 65, 159-163.	0.4	27
100	Regulation of cytoplasmic calcium concentration in tetracycline-treated osteoclasts. Journal of Bone and Mineral Research, 1992, 7, 1313-1318.	2.8	27
101	Increased expression of matrix metalloproteinase-1 in osteocytes precedes bone resorption as stimulated by disuse: Evidence for autoregulation of the cell's mechanical environment?. Journal of Orthopaedic Research, 1999, 17, 354-361.	2.3	25
102	Automated Separation of Visceral and Subcutaneous Adiposity in In Vivo Microcomputed Tomographies of Mice. Journal of Digital Imaging, 2009, 22, 222-231.	2.9	24
103	Marrow Adiposity and Hematopoiesis in Aging and Obesity: Exercise as an Intervention. Current Osteoporosis Reports, 2018, 16, 105-115.	3.6	23
104	Cloning of a Novel cDNA Expressed during the Early Stages of Fracture Healing. Biochemical and Biophysical Research Communications, 1998, 249, 879-884.	2.1	21
105	The mechanical consequences of load bearing in the equine third metacarpal across speed and gait: the nonuniform distributions of normal strain, shear strain, and strain energy density. FASEB Journal, 2013, 27, 1887-1894.	0.5	21
106	Electromagnetic fields in bone repair and adaptation. Radio Science, 1995, 30, 233-244.	1.6	19
107	Differential Phosphorylation of Paxillin in Response to Surface-Bound Serum Proteins during Early Osteoblast Adhesion. Biochemical and Biophysical Research Communications, 2001, 285, 355-363.	2.1	19
108	Insights from the conduct of a device trial in older persons: low magnitude mechanical stimulation for musculoskeletal health. Clinical Trials, 2010, 7, 354-367.	1.6	19

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109	Diminished satellite cells and elevated adipogenic gene expression in muscle as caused by ovariectomy are averted by low-magnitude mechanical signals. Journal of Applied Physiology, 2015, 119, 27-36.	2.5	19
110	Effects of anisotropy and material axis registration on computed stress and strain distributions in the Turkey ulna. Journal of Biomechanics, 1996, 29, 261-267.	2.1	18
111	Enhancement of neuromuscular dynamics and strength behavior using extremely low magnitude mechanical signals in mice. Journal of Biomechanics, 2014, 47, 162-167.	2.1	18
112	Incorporating Refractory Period in Mechanical Stimulation Mitigates Obesityâ€Induced Adipose Tissue Dysfunction in Adult Mice. Obesity, 2017, 25, 1745-1753.	3.0	18
113	The Efficacy of Low-intensity Vibration to Improve Bone Health in Patients with End-stage Renal Disease Is Highly Dependent on Compliance and Muscle Response. Academic Radiology, 2017, 24, 1332-1342.	2.5	16
114	Mechanical suppression of breast cancer cell invasion and paracrine signaling to osteoclasts requires nucleo-cytoskeletal connectivity. Bone Research, 2020, 8, 40.	11.4	16
115	Proline-rich transcript of the brain (prtb) is a serum-responsive gene in osteoblasts and upregulated during adhesion. Journal of Cellular Biochemistry, 2002, 84, 301-308.	2.6	15
116	Exercise to Mend Aged-tissue Crosstalk in Bone Targeting Osteoporosis & Osteoarthritis. Seminars in Cell and Developmental Biology, 2022, 123, 22-35.	5.0	14
117	Quantitative ultrasound imaging monitoring progressive disuse osteopenia and mechanical stimulation mitigation in calcaneus region through a 90-day bed rest human study. Journal of Orthopaedic Translation, 2019, 18, 48-58.	3.9	13
118	Postural Stability in Obese Preoperative Bariatric Patients Using Static and Dynamic Evaluation. Obesity Facts, 2020, 13, 499-513.	3.4	12
119	Three-dimensional geometric and structural symmetry of the turkey ulna. Journal of Orthopaedic Research, 1995, 13, 690-699.	2.3	10
120	Osteoporosis. Evolution, Medicine and Public Health, 2015, 2015, 343-343.	2.5	10
121	Mechanical signals protect stem cell lineage selection, preserving the bone and muscle phenotypes in obesity. Annals of the New York Academy of Sciences, 2017, 1409, 33-50.	3.8	9
122	Gene expression patterns in bone after 4 days of hind-limb unloading in two inbred strains of mice. Aviation, Space, and Environmental Medicine, 2005, 76, 530-5.	0.5	9
123	Lowâ€intensity vibration increases cartilage thickness in obese mice. Journal of Orthopaedic Research, 2018, 36, 751-759.	2.3	7
124	The Lipogenic Gene Spot 14 is Activated in Bone by Disuse yet Remains Unaffected by a Mechanical Signal Anabolic to the Skeleton. Calcified Tissue International, 2008, 82, 148-154.	3.1	4
125	MECHANOTRANSDUCTION AND ITS ROLE IN BONE ADAPTATION. , 2005, , 365-411.		2
126	Mechanical vibrations reduce the Intervertebral Disc swelling and muscle atrophy from Bed Rest. , 2007, , .		2

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127	Mechanisms of exercise effects on bone quantity and quality. , 2020, , 1759-1784.		2
128	Chapter 46. Exercise and the Prevention of Osteoporosis. , 0, , 227-231.		1
129	The effect of low-intensity whole-body vibration with or without high-intensity resistance and impact training on risk factors for proximal femur fragility fracture in postmenopausal women with low bone mass: study protocol for the VIBMOR randomized controlled trial. Trials, 2022, 23, 15.	1.6	1
130	High-Resolution Imaging of Organs and Tissues by in vivo Micro-Computed Tomography. , 2008, , 313-330.		0