Vijay K Goel

List of Publications by Year in descending order

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136 papers	5,474 citations	40 h-index	91712 69 g-index
137	137	137	3059
all docs	docs citations	times ranked	citing authors

#	Article	IF	CITATIONS
1	Cervical Human Vertebrae Quantitative Three-Dimensional Anatomy of the Middle and Lower Regions. Spine, 1991, 16, 861-869.	1.0	384
2	Load-Sharing Between Anterior and Posterior Elements in a Lumbar Motion Segment Implanted With an Artificial Disc. Spine, 2001, 26, E122-E129.	1.0	232
3	A Combined Finite Element and Optimization Investigation of Lumbar Spine Mechanics With and Without Muscles. Spine, 1993, 18, 1531-1541.	1.0	224
4	Prediction of Load Sharing Among Spinal Components of a C5-C6 Motion Segment Using the Finite Element Approach. Spine, 1998, 23, 684-691.	1.0	223
5	Test Protocols for Evaluation of Spinal Implants. Journal of Bone and Joint Surgery - Series A, 2006, 88, 103-109.	1.4	199
6	An Analytical Investigation of the Mechanics of Spinal Instrumentation. Spine, 1988, 13, 1003-1011.	1.0	191
7	Effects of Charité Artificial Disc on the Implanted and Adjacent Spinal Segments Mechanics Using a Hybrid Testing Protocol. Spine, 2005, 30, 2755-2764.	1.0	191
8	Contribution of disc degeneration to osteophyte formation in the cervical spine: a biomechanical investigation. Journal of Orthopaedic Research, 2001, 19, 977-984.	1.2	175
9	Lumbar Fusion Leads to Increases in Angular Motion and Stress Across Sacroiliac Joint. Spine, 2009, 34, E162-E169.	1.0	154
10	A technique for measurement and description of three-dimensional six degree-of-freedom motion of a body joint with an application to the human spine. Journal of Biomechanics, 1981, 14, 447-460.	0.9	149
11	Uncinate processes and Luschka joints influence the biomechanics of the cervical spine: Quantification using a finite element model of the C5-C6 segment. Journal of Orthopaedic Research, 1997, 15, 342-347.	1.2	122
12	Biomechanical analysis of bone mineral density, insertion technique, screw torque, and holding strength of anterior cervical plate screws. Journal of Neurosurgery, 1995, 83, 324-329.	0.9	109
13	Investigation of Vibration Characteristics of the Ligamentous Lumbar Spine Using the Finite Element Approach. Journal of Biomechanical Engineering, 1994, 116, 377-383.	0.6	107
14	Impact Response of the Intervertebral Disc in a Finite-Element Model. Spine, 2000, 25, 2431-2439.	1.0	107
15	Cancellous Bone Young's Modulus Variation Within the Vertebral Body of a Ligamentous Lumbar Spine—Application of Bone Adaptive Remodeling Concepts. Journal of Biomechanical Engineering, 1995, 117, 266-271.	0.6	105
16	Strain Response of the Anterior Cruciate Ligament to Uniplanar and Multiplanar Loads During Simulated Landings. American Journal of Sports Medicine, 2016, 44, 2087-2096.	1.9	100
17	Biomechanics of the Sacroiliac Joint: Anatomy, Function, Biomechanics, Sexual Dimorphism, and Causes of Pain. International Journal of Spine Surgery, 2020, 14, S3-S13.	0.7	96
18	Materials and design of spinal implants?A review. , 1997, 38, 267-288.		90

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19	Ability of the Finite Element Models to Predict Response of the Human Spine to Sinusoidal Vertical Vibration. Spine, 2003, 28, 1961-1967.	1.0	79
20	Three-dimensional finite element analysis of the pediatric lumbar spine. Part I: pathomechanism of apophyseal bony ring fracture. European Spine Journal, 2006, 15, 923-929.	1.0	76
21	Kinematics of the cervical spine: Effects of multiple total laminectomy and facet wiring. Journal of Orthopaedic Research, 1988, 6, 611-619.	1.2	70
22	Biomechanics of two-level Charit \tilde{A} © artificial disc placement in comparison to fusion plus single-level disc placement combination. Spine Journal, 2006, 6, 659-666.	0.6	66
23	Artificial disc prosthesis: design concepts and criteria. Spine Journal, 2004, 4, S209-S218.	0.6	65
24	Finite Element Methods in Spine Biomechanics Research. Critical Reviews in Biomedical Engineering, 1995, 23, 411-473.	0.5	58
25	Spine Update. Spine, 1995, 20, 1719-1727.	1.0	57
26	Do design variations in the artificial disc influence cervical spine biomechanics? A finite element investigation. European Spine Journal, 2012, 21, 653-662.	1.0	57
27	Relationship between limb length discrepancy and load distribution across the sacroiliac joint—a finite element study. Journal of Orthopaedic Research, 2012, 30, 1577-1580.	1.2	56
28	The Pathomechanism of Spondylolytic Spondylolisthesis in Immature Primate Lumbar Spines. Spine, 2001, 26, E38-E49.	1.0	55
29	Adjacent level effects of bi level disc replacement, bi level fusion and disc replacement plus fusion in cervical spine- a finite element based study. Clinical Biomechanics, 2012, 27, 226-233.	0.5	55
30	Sex Specific Sacroiliac Joint Biomechanics During Standing Upright. Spine, 2018, 43, E1053-E1060.	1.0	53
31	Three dimensional finite element analysis of the pediatric lumbar spine. Part II: biomechanical change as the initiating factor for pediatric isthmic spondylolisthesis at the growth plate. European Spine Journal, 2006, 15, 930-935.	1.0	52
32	Residual Sagittal Motion After Lumbar Fusion. Spine, 2007, 32, 417-422.	1.0	51
33	Effects of Muscle Dysfunction on Lumbar Spine Mechanics. Spine, 1996, 21, 2197-2206.	1.0	50
34	Timing sequence of multi-planar knee kinematics revealed by physiologic cadaveric simulation of landing: Implications for ACL injury mechanism. Clinical Biomechanics, 2014, 29, 75-82.	0.5	50
35	Anatomic Facet Replacement System (AFRS) Restoration of Lumbar Segment Mechanics to Intact: A Finite Element Study and In Vitro Cadaver Investigation. SAS Journal, 2007, 1, 46-54.	1.3	49
36	Sacroiliac Joint Fusion Minimally Affects Adjacent Lumbar Segment Motion: A Finite Element Study. International Journal of Spine Surgery, 2015, 9, 64.	0.7	49

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37	Uni-directional coupling between tibiofemoral frontal and axial plane rotation supports valgus collapse mechanism of ACL injury. Journal of Biomechanics, 2015, 48, 1745-1751.	0.9	47
38	Optimal satellite rod constructs to mitigate rod failure following pedicle subtraction osteotomy (PSO): a finite element study. Spine Journal, 2019, 19, 931-941.	0.6	47
39	Basic Science of Spinal Instrumentation. Clinical Orthopaedics and Related Research, 1997, 335, 10-31.	0.7	46
40	Design of an Artificial Intervertebral Disc Exhibiting a Negative Poisson's Ratio. Frontiers in Forests and Global Change, 2005, 24, 127-138.	0.6	45
41	Single-Phase, Antibacterial Trimagnesium Phosphate Hydrate Coatings on Polyetheretherketone (PEEK) Implants by Rapid Microwave Irradiation Technique. ACS Biomaterials Science and Engineering, 2018, 4, 2767-2783.	2.6	44
42	Lumbar Spinal Disorders in Patients With Athetoid Cerebral Palsy. Spine, 2006, 31, E66-E70.	1.0	40
43	The Effect of Removing the Lateral Part of the Pars Interarticularis on Stress Distribution at the Neural Arch in Lumbar Foraminal Microdecompression at L3–L4 and L4–L5. Spine, 2007, 32, 2462-2466.	1.0	39
44	Effect of the Increase in the Height of Lumbar Disc Space on Facet Joint Articulation Area in Sagittal Plane. Spine, 2006, 31, E198-E202.	1.0	38
45	Kinematic Motion Patterns of the Cranial and Caudal Canine Cervical Spine. Veterinary Surgery, 2011, 40, 720-727.	0.5	38
46	Effects of seated posture on erector spinae EMG activity during whole body vibration. Ergonomics, 1993, 36, 667-675.	1.1	37
47	Buck's direct repair of lumbar spondylolysis restores disc stresses at the involved and adjacent levels. Clinical Biomechanics, 2006, 21, 1020-1026.	0.5	35
48	Role of Gloves in Reducing Vibration: An Analysis for Pneumatic Chipping Hammer. AIHA Journal, 1987, 48, 9-14.	0.4	34
49	Stress analysis of a canine spinal motion segment using the finite element technique. Journal of Biomechanics, 1994, 27, 1259-1269.	0.9	34
50	Parameters that effect spine biomechanics following cervical disc replacement. European Spine Journal, 2012, 21, 688-699.	1.0	33
51	Smaller Interval Distractions May Reduce Chances of Growth Rod Breakage Without Impeding Desired Spinal Growth: A Finite Element Study. Spine Deformity, 2014, 2, 430-436.	0.7	33
52	The Effect of Ligament Modeling Technique on Knee Joint Kinematics: A Finite Element Study. Applied Mathematics, 2013, 04, 91-97.	0.1	31
53	Biomechanical rationale of ossification of the secondary ossification center on apophyseal bony ring fracture: A biomechanical study. Clinical Biomechanics, 2007, 22, 1063-1067.	0.5	28
54	Sacroiliac joint stability: Finite element analysis of implant number, orientation, and superior implant length. World Journal of Orthopedics, 2018, 9, 14-23.	0.8	27

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55	A Comparison of Stress-Induced Porosity Due to Conventional and a Modified Spinal Fixation Device. Journal of Spinal Disorders, 1994, 7, 1-11.	1.1	26
56	Development of nanosilica bonded monetite cement from egg shells. Materials Science and Engineering C, 2015, 50, 45-51.	3.8	26
57	A Computational Biomechanical Investigation of Posterior Dynamic Instrumentation: Combination of Dynamic Rod and Hinged (Dynamic) Screw. Journal of Biomechanical Engineering, 2014, 136, 051007.	0.6	25
58	Biomechanical Analysis Comparing Three C1–C2 Transarticular Screw Salvaging Fixation Techniques. Spine, 2010, 35, 378-385.	1.0	24
59	Outcomes of Optimal Distraction Forces and Frequencies in Growth Rod Surgery for Different Types of Scoliotic Curves: An In Silico and InÂvitro Study. Spine Deformity, 2017, 5, 18-26.	0.7	24
60	Effects on hip stress following sacroiliac joint fixation: A finite element study. JOR Spine, 2019, 2, e1067.	1.5	24
61	Effect of Distraction Force on Growth and Biomechanics of the Spine: A Finite Element Study on Normal Juvenile Spine With Dual Growth Rod Instrumentation. Spine Deformity, 2014, 2, 260-269.	0.7	23
62	On the Use of Biaxial Properties in Modeling Annulus as a Holzapfelââ,¬â€œGasserââ,¬â€œOgden Material. Frontiers in Bioengineering and Biotechnology, 2015, 3, 69.	2.0	22
63	Spinal Balance/Alignment—Clinical Relevance and Biomechanics. Journal of Biomechanical Engineering, 2019, 141, .	0.6	22
64	latrogenic muscle damage in transforaminal lumbar interbody fusion and adjacent segment degeneration: a comparative finite element analysis of open and minimally invasive surgeries. European Spine Journal, 2021, 30, 2622-2630.	1.0	22
65	Anatomic Facet Replacement System (AFRS) Restoration of Lumbar Segment Mechanics to Intact: A Finite Element Study and In Vitro Cadaver Investigation. International Journal of Spine Surgery, 2007, 1, 46-54.	0.7	22
66	Kinematic effects of a pedicle-lengthening osteotomy for the treatment of lumbar spinal stenosis. Journal of Neurosurgery: Spine, 2012, 17, 314-320.	0.9	21
67	Biomechanical Evaluation of an Endplate-Conformed Polycaprolactone-Hydroxyapatite Intervertebral Fusion Graft and Its Comparison With a Typical Nonconformed Cortical Graft. Journal of Biomechanical Engineering, 2013, 135, 61005-9.	0.6	21
68	Quantitative Characteristics of Consecutive Lengthening Episodes in Early-onset Scoliosis (EOS) Patients With Dual Growth Rods. Spine, 2019, 44, 397-403.	1.0	21
69	Finite Element Study of Matched Paired Posterior Disc Implant and Dynamic Stabilizer (360° Motion) Tj ETQq1 I	1 9.784314	4 ggBT /Ove
70	Distraction magnitude and frequency affects the outcome in juvenile idiopathic patients with growth rods: finite element study using a representative scoliotic spine model. Spine Journal, 2015, 15, 1848-1855.	0.6	20
71	Dynamic response of the occipito-atlanto-axial (C0-C1-C2) complex in right axial rotation. Journal of Orthopaedic Research, 1992, 10, 446-453.	1.2	18
72	Models that incorporate spinal structures predict better wear performance of cervical artificial discs. Spine Journal, 2011, 11, 766-776.	0.6	18

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73	Operated and Adjacent Segment Motions for Fusion versus Cervical Arthroplasty: A Pilot Study. Clinical Orthopaedics and Related Research, 2011, 469, 682-687.	0.7	18
74	Evaluation of effectiveness of a facet wiring technique: Anin vitro biomechanical investigation. Annals of Biomedical Engineering, 1989, 17, 115-126.	1.3	17
75	Newly occurred L4 spondylolysis in the lumbar spine with pre-existence L5 spondylolysis among sports players: case reports and biomechanical analysis. Archives of Orthopaedic and Trauma Surgery, 2009, 129, 1433-1439.	1.3	16
76	Patient-specific Distraction Regimen to Avoid Growth-rod Failure. Spine, 2018, 43, E221-E226.	1.0	15
77	Sustained release of small molecules from carbon nanotube-reinforced monetite calcium phosphate cement. Materials Science and Engineering C, 2014, 43, 92-96.	3.8	14
78	Effects of Flexion and Extension on the Diameter of the Caudal Cervical Vertebral Canal in Dogs. Veterinary Surgery, 2015, 44, 459-466.	0.5	14
79	Vertebral Endplate Morphology Follows Bone Remodeling Principles. Spine, 2007, 32, E667-E673.	1.0	13
80	Automated Measurement of Patient-Specific Tibial Slopes from MRI. Bioengineering, 2017, 4, 69.	1.6	13
81	Biomechanics of the Sacroiliac Joint: Surgical Treatments. International Journal of Spine Surgery, 2020, 14, 355-367.	0.7	13
82	Computational Modeling and Finite Element Analysis. Spine, 2016, 41, S6-S7.	1.0	12
83	Load Sharing Characteristics in the Stabilized Lumbar Motion Segment: A Finite Element Study. Journal of Musculoskeletal Research, 1998, 02, 55-64.	0.1	11
84	Finite Element Study of Matched Paired Posterior Disc Implant and Dynamic Stabilizer (360° Motion) Tj ETQq0	0 0 rgBT /0	Overlock 10 T
85	A unique modular implant system enhances load sharing in anterior cervical interbody fusion: a finite element study. BioMedical Engineering OnLine, 2014, 13, 26.	1.3	11
86	Adjacent-Level Hypermobility and Instrumented-Level Fatigue Loosening With Titanium and PEEK Rods for a Pedicle Screw System: An In Vitro Study. Journal of Biomechanical Engineering, 2016, 138, 051004.	0.6	11
87	A novel 3D approach for determination of frontal and coronal plane tibial slopes from MR imaging. Knee, 2017, 24, 207-216.	0.8	11
88	Regulation of RANKLâ€induced osteoclastogenesis by RING finger protein RNF114. Journal of Orthopaedic Research, 2018, 36, 159-166.	1.2	11
89	Biomechanical Analysis of Posterior Ligaments of Cervical Spine and Laminoplasty. Applied Sciences (Switzerland), 2021, 11, 7645.	1.3	11
90	FDA public workshop: Orthopaedic sensing, measuring, and advanced reporting technology (SMART) devices. Journal of Orthopaedic Research, 2021, 39, 22-29.	1.2	10

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91	A Comparative Biomechanical Analysis of Various Rod Configurations Following Anterior Column Realignment and Pedicle Subtraction Osteotomy. Neurospine, 2021, 18, 587-596.	1.1	10
92	Biomechanical rationale of sacral rounding deformity in pediatric spondylolisthesis: a clinical and biomechanical study. Archives of Orthopaedic and Trauma Surgery, 2011, 131, 1187-1194.	1.3	9
93	A Paradigm Shift Toward Terminally Sterilized Devices. Clinical Spine Surgery, 2018, 31, 308-311.	0.7	9
94	Clinically relevant finite element technique based protocol to evaluate growing rods for early onset scoliosis correction. JOR Spine, 2020, 3, e1119.	1.5	9
95	The Endplate Morphology Changes with Change in Biomechanical Environment Following Discectomy. International Journal of Clinical Medicine, 2013, 04, 8-17.	0.1	9
96	Spinal Cord Mechanics During Flexion and Extension of the Cervical Spine: A Finite Element Study. Pain Physician, 2002, 4;5, 394-400.	0.3	9
97	Morphological changes of the caudal cervical intervertebral foramina due to flexion-extension and compression-traction movements in the canine cervical vertebral column. BMC Veterinary Research, 2015, 11, 184.	0.7	8
98	Biomechanics of a posture-controlling cervical artificial disc: mechanical, in vitro, and finite-element analysis. Neurosurgical Focus, 2010, 28, E11.	1.0	7
99	Prediction of clinically relevant initiation and progression of tears within annulus fibrosus. Journal of Orthopaedic Research, 2017, 35, 113-122.	1.2	7
100	Letter to the Editor concerning "Rod fracture and lengthening intervals in traditional growing rods: is there a relationship?―by P. Hosseini et al. Eur Spine J (2016). doi:10.1007/s00586-016-4786-8. European Spine Journal, 2017, 26, 1696-1697.	1.0	7
101	Mechanical performance of traditional distraction-based dual growing rod constructs. Spine Journal, 2019, 19, 744-754.	0.6	7
102	Tibiofemoral Cartilage Contact Pressures in Athletes During Landing: A Dynamic Finite Element Study. Journal of Biomechanical Engineering, 2021, 143, .	0.6	6
103	Updates on Evidence-Based Practices to Reduce Preoperative and Intraoperative Contamination of Implants in Spine Surgery: A Narrative Review. Spine Surgery and Related Research, 2020, 4, 111-116.	0.4	6
104	Soft tissue injury in cervical spine is a risk factor for intersegmental instability: a finite element analysis World Neurosurgery, 2022, , .	0.7	6
105	Interactions between SNP Alleles at Multiple Loci and Variation in Skin Pigmentation in 122 Caucasians. Evolutionary Bioinformatics, 2007, 3, 117693430700300.	0.6	5
106	Optimizing Vancomycin Release from Calcium Phosphate-Based Cement by Carboxymethyl Cellulose for Prevention of Osteomyelitis. Surgical Infections, 2017, 18, 221-222.	0.7	5
107	Lumbar-Sacral Destruction Fixation Biomechanics: A Finite Element Study. Spine Journal, 2017, 17, S335.	0.6	5
108	High Prevalence of Biofilms on Retrieved Implants from Aseptic Pseudarthrosis Cases. Spine Surgery and Related Research, 2021, 5, 104-108.	0.4	4

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109	Biomechanical analysis of laminectomy, laminoplasty, posterior decompression with instrumented fusion, and anterior decompression with fusion for the kyphotic cervical spine. International Journal of Computer Assisted Radiology and Surgery, 2022, 17, 1531-1541.	1.7	4
110	Possible Role of Stresses in Inducing Spinal Stenosisâ€"A Long Term Complication Following Disk Excision. Journal of Biomechanical Engineering, 1990, 112, 478-481.	0.6	3
111	Biomechanical Analysis of the Tuning Fork Plate Versus Dual Pelvic Screws in a Sacrectomy Model: A Finite Element Study. Global Spine Journal, 2021, , 219256822098379.	1.2	3
112	TEST PROTOCOLS FOR EVALUATION OF SPINAL IMPLANTS. Journal of Bone and Joint Surgery - Series A, 2006, 88, 103-109.	1.4	3
113	Necrosis of Staphylococcus aureus by the Electrospun Fe- and Ag-Doped TiO2 Nanofibers. ISRN Orthopedics, 2012, 2012, 1-11.	0.7	2
114	Novel Measurement of Multi-planar Proximal Tibial Slope. Medicine and Science in Sports and Exercise, 2016, 48, 803.	0.2	2
115	Development of a finite element model of the ligamentous cervical vertebral column of a Great Dane. Research in Veterinary Science, 2018, 118, 97-100.	0.9	2
116	A new lumbar fixation device alternative to pedicle-based stabilization for lumbar spine: In vitro cadaver investigation. Journal of Spinal Cord Medicine, 2020, 43, 98-105.	0.7	2
117	Towards a validated patient-specific computational modeling framework to identify failure regions in traditional growing rods in patients with early onset scoliosis. North American Spine Society Journal (NASSJ), 2021, 5, 100043.	0.3	2
118	Biomechanical evaluation of a novel decompression surgery: Transforaminal full-endoscopic lateral recess decompression (TE-LRD). North American Spine Society Journal (NASSJ), 2021, 5, 100045.	0.3	2
119	Lumbar Disc Degeneration Affects the Risk of Rod Fracture Following PSO; A Finite Element Study. Global Spine Journal, 2023, 13, 2336-2344.	1.2	2
120	Biomechanical analysis of stand-alone lumbar interbody cages versus $360 \hat{A}^{\circ}$ constructs: an in vitro and finite element investigation. Journal of Neurosurgery: Spine, 2022, 36, 928-936.	0.9	2
121	Sacroiliac joint stabilization using implants provide better fixation in females compared to males: a finite element analysis. European Spine Journal, 2021, 30, 2351-2359.	1.0	1
122	P9. A distraction-based bench top protocol for the evaluation of growing rod concepatients. Spine Journal, 2021, 21, S144-S145.	0.6	1
123	Current benchtop protocols are not appropriate for the evaluation of distraction-based growing rods: a literature review to justify a new protocol and its development. European Spine Journal, 2022, , $1. $	1.0	1
124	Finite Element Comparison of the Spring Distraction System and the Traditional Growing Rod for the treatment of Early Onset Scoliosis. Spine, 2021, Publish Ahead of Print, .	1.0	1
125	Point of View. Spine, 2007, 32, 967.	1.0	0
126	Foreword. SAS Journal, 2009, 3, 123-124.	1.3	0

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127	Gravimetric wear analysis and particulate characterization of bilateral facet-augmentation system – PercuDynâ,,¢. Bio-Medical Materials and Engineering, 2010, 20, 329-338.	0.4	0
128	Effects of rate of loading on viscoelastic supraspinous ligament inflammation and cumulative lumbar disorder. Spine Journal, 2010, 10, 1086-1088.	0.6	0
129	Commentary: Biomechanics of various surgical procedures for the treatment of multilevel cervical spine. Spine Journal, 2012, 12, 409-410.	0.6	O
130	Inherent Strength of the osteo-WEDGEâ,,¢ Bone Plate Locking System forÂArthrodesis of the First Metatarsocuneiform Joint: AÂBiomechanicalÂStudy. Journal of Foot and Ankle Surgery, 2016, 55, 444-449.	0.5	0
131	Design Rationale for Posterior Dynamic Stabilization Relevant for Spine Surgery., 2021,, 293-314.		O
132	Basic Science Symposium II: MEMS Technology. International Journal of Spine Surgery, 2008, 2, 120-129.	0.7	0
133	Foreword, Biomechanics Special Issue. International Journal of Spine Surgery, 2015, 9, 31.	0.7	0
134	Biomechanical Testing. , 2017, , 293-304.e2.		0
135	Computational Modeling of the Spine. , 2017, , 305-311.e2.		0
136	Effects of rod diameter on kinematics of posterior cervical spine instrumented constructs: an ex vivo study. Journal of Neurosurgery: Spine, 2022, 37, 749-757.	0.9	O