

Scientific Publications Featuring Medical Metrics' Technology and Methods for Spine Clinical Trials

The following bibliography features peer-reviewed journal articles, book chapters, and industry guidance documents involving work performed by Medical Metrics during spine clinical trials and research studies.

1. Health Quality Ontario. **Cervical Artificial Disc Replacement Versus Fusion for Cervical Degenerative Disc Disease: A Health Technology Assessment.** *Ont Health Technol Assess Ser* 2019; 19(3):1-223
2. Bassani T, Sconfienza LM and Galbusera F. **In Vivo Studies: Spinal Imaging.** In: Biomechanics of the Spine: Basic Concepts, Spine Disorders and Treatments, eds Galbusera F and Wilke H-J. *Elsevier Academic Press*, London, 2018
3. Schmidt S, Franke J, Rauschmann M, Adelt D, Bosanto M, Sola S. **Prospective, Randomized, Multicenter Study with 2-year Follow-up to Compare the Performance of Decompression with and without Interlaminar Stabilization.** *J Neurosurg Spine* 2018;1-10
4. Simon RB, Dowe C, Grinberg S, Cammisa FP, Abjornson C. **The 2-Level Experience of Interlaminar Stabilization: 5-Year Follow-Up of a Prospective, Randomized, Clinical Experience Compared to Fusion for the Sustainable Management of Spine Stenosis.** *Int J Spine Surg* 2018; 12(4):419-427
5. Coric D, Guyer RD, Nunley PD, Musante D, Carmody C, Gordon C, Laurysen C, Boltjes MO, Ohnmeiss DD. **Prospective, Randomized, Multi-center Study of Cervical Arthroplasty versus Anterior Cervical Discectomy and Fusion: 5-Year Results with a Metal-on-Metal Artificial Disc.** *J Neurosurgery Spine* 2018; 28:252-261
6. Arnold PM, Sasso RC, Janssen ME, Fehlings MG, Heary RF, Vaccaro AR, Kopjar B. **i-Factor™ Bone Graft vs. Autograft in Anterior Cervical Discectomy and Fusion: 2-Year Follow-Up of the Randomized Single-Blinded Food and Drug Administration Investigational Device Exemption Study.** *Neurosurgery* 2018; 83(3):377-384
7. Vaccaro A, Beutler W, Peppelman W, Marzluff J, Mugglin A, Rmakrishnan PS, Myer J, Baker K. **Long-Term Clinical Experience with Selectively Constrained SECURE-C Cervical Artificial Disc for 1-Level Cervical Disc Disease: Results from Seven-Year Follow-Up of a Prospective, Randomized, Controlled Investigational Device Exemption Clinical Trial.** *Int J Spine Surg* 2018; 12(3):377-387
8. Robbins S, Laurysen C, Songer M. **Use of Nanocrystalline Hydroxyapatite with Autologous BMA and Local Bone in the Lumbar Spine. A Retrospective Analysis of Posterolateral Fusion Results.** *Clin Spine Surg* 2017; 30:E192-197.
9. Peppers TA, Bullard DE, Vanichkachorn JS, *et al.* **Prospective Clinical and Radiographic Evaluation of an Allogeneic Bone Matrix Containing Stem Cells (Trinity Evolution® Viable Cellular Bone Matrix) in Patients Undergoing Two-level Anterior Cervical Discectomy and Fusion.** *Journal of Orthopaedic Surgery and Research* 2017; 12(1):67
10. Arts MP, Wolfs JF, Corbin TP. **Porous Silicon Nitride Spacers Versus PEEK Cages for Anterior Cervical Discectomy and Fusion: Clinical and Radiological Results of a Single-blinded Randomized Controlled Trial.** *European Spine Journal* 2017:1-8
11. Coathup MJ, Blunn GW, Champion C, Ho CY, Hing KA. **The Effect of Increased Microporosity on Bone Formation within Silicate-Substituted Scaffolds in An Ovine Posterolateral Spinal Fusion Model.** *Journal of Biomedical Materials Research Part B: Applied Biomaterials* 2017; 105(4):805-814
12. Parker SL, Grahovac G, Vukas D, *et al.* **Effect of an Annular Closure Device (Barricaid) on Same-Level Recurrent Disk Herniation and Disk Height Loss After Primary Lumbar Discectomy: Two-year Results of a Multicenter Prospective Cohort Study.** *Clinical Spine Surgery* 2016; 29:454-460
13. Hosseini P, Nnadi C, Reháč L, *et al.* **Analysis of Segmental Mobility Following a Novel Posterior Apical Short-Segment Correction for Adolescent Idiopathic Scoliosis.** *Spine* 2016; 41:E1223-E1229
14. Bae HW, Davis RJ, Laurysen C, Leary S, Maislin G, Musacchio Jr MJ. **Three-year Follow-up of the Prospective, Randomized, Controlled Trial of coflex Interlaminar Stabilization vs Instrumented Fusion in Patients with Lumbar Stenosis.** *Neurosurgery* 2016; 79(2):169-181

15. Pekmezci M, Tang JA, Cheng L, *et al.* **Comparison of Expandable and Fixed Interbody Cages in a Human Cadaver Corpectomy Model: Fatigue Characteristics.** *Clinical Spine Surgery* 2016; 29:387-393
16. Patwardhan AG, Caradang G, Voronov LI, Havey RM, Paul GA, Laurysen C, Coric D, Dimming T, Musante D. **Are Collapsed Cervical Discs Amenable to Total Disc Arthroplasty: Analysis of Prospective Clinical Data with 2-Year Follow-Up.** *Spine* 2016; 41(24):1866-75
17. Arnold PM, Sasso RC, Janssen ME, Fehlings MG, Smucker JD, Vaccaro AR, Heary RF, Patel AI, Goulet B, Kalfas IH, Kopjar B. **Efficacy of I-Factor Bone Graft versus Autograft in Anterior Cervical Discectomy and Fusion: Results of the Prospective, Randomized, Single-blinded Food and Drug Administration Investigational Device Exemption Study.** *Spine* 2016; 41(13):1075-83.
18. Musacchio MJ, Laurysen C, Davis RJ, Bae HW, Pelozo JH, Guyer RD, Zigler JE, Ohnmeiss DD, Leary S. **Evaluation of Decompression and Interlaminar Stabilization Compared with Decompression and Fusion for the Treatment of Lumbar Spinal Stenosis: 5-year Follow-up of a Prospective, Randomized, Controlled Trial.** *Int J Spine Surg* 2016; 10
19. Zigler JE, Rogers RW, Ohnmeiss DD. **Comparison of 1-Level Versus 2-Level Anterior Cervical Discectomy and Fusion: Clinical and Radiographic Follow-Up at 60 Months.** *Spine* 2016; 41:463-9
20. Yucesoy K, Yuksel K, Yuksel M, Kalemci O, Altun I. **Changes in Sagittal Alignment after Cervical Disc Arthroplasty: Results of a Pilot Study.** *J Spine* 2016; 5(1)
21. Guyer RD, Pettine K, Roh JS, Dimmig TA, Coric D, McAfee PC, *et al.* **Five-year Follow-up of a Prospective, Randomized Trial Comparing Two Lumbar Total Disc Replacements.** *Spine* 2016; 41(1):3-8
22. Vanichkachorn J, Peppers T, Bullard D, Stanley SK, Linovitz RJ, Ryaby JT. **A Prospective Clinical and Radiographic 12-month Outcome Study of Patients Undergoing Single-level Anterior Cervical Discectomy and Fusion for Symptomatic Cervical Degenerative Disc Disease Utilizing a Novel Viable Allogeneic, Cancellous, Bone Matrix (Trinity Evolution™) with a Comparison to Historical Controls.** *European Spine Journal* 2016; 25:2233-8
23. Barth M, Fontana J, Thomé C, Bouma GJ, Schmieder K. **Occurrence of Discal and Non-discal Changes After Sequestrectomy Alone Versus Sequestrectomy and Implantation of An Anulus Closure Device.** *Journal of Clinical Neuroscience* 2016
24. Garcia R, Yue JJ, Blumenthal SL, Coric D, Patel VV. **Lumbar Total Disc Replacement for Discogenic Low Back Pain: Primary Powered Endpoint Outcomes of the ActivL® IDE Clinical Trial.** *The Spine Journal* 2016; 16(10):S260
25. Nunley PD, Kerr EJ, Cavanaugh DA, Utter A, Frank K, Stone M. **Seven-Year Radiographic Adjacent Segment Pathology after Treatment with TDR or ACDF at One or Two Levels.** *The Spine Journal* 2016; 16(10):S283
26. Meisel H-J, Jurák L, Antinheimo J, Arregui R, Bruchmann B, Čabrava M, *et al.* **Four-year Results of a Prospective Single-arm Study on 200 Semi-constrained Total Cervical Disc Prostheses: Clinical and Radiographic Outcome.** *Journal of Neurosurgery: Spine* 2016:1-10
27. Zhao KD, Ben-Abraham EI, Magnuson DJ, Camp JJ, Berglund LJ, An K-N, *et al.* **Effect of Off-Axis Fluoroscopy Imaging on Two-Dimensional Kinematics in the Lumbar Spine: A Dynamic In Vitro Validation Study.** *Journal of Biomechanical Engineering* 2016; 138(5):054502
28. Hisey MS, Zigler JE, Jackson R, Nunley PD, Bae HW, Kim KD, *et al.* **Prospective, Randomized Comparison of One-level Mobi-C Cervical Total Disc Replacement vs. Anterior Cervical Discectomy and Fusion: Results at 5-year Follow-up.** *International Journal of Spine Surgery* 2016; 10
29. Isaacs RE, Sembrano JN, Tohmeh AG. **Two-Year Comparative Outcomes of MIS Lateral and MIS Transforaminal Interbody Fusion in the Treatment of Degenerative Spondylolisthesis.** *Spine* 2016; 41(1):S133-S44
30. Becker S, Hadjipaviou AG, Heggeness MH. **Ablation of the Basivertebral Nerve for Treatment of Back Pain: A Clinical Study.** *The Spine Journal* 2016; 17(2):218-223
31. Hipp JA, Guyer RD, Zigler JE, Ohnmeiss DD, Wharton ND. **Development of a Novel Radiographic Measure of Lumbar Instability and Validation Using the Facet Fluid Sign.** *Int J Spine Surg - Biomechanics Special Issue* 2015
32. Phillips FM, Geisler FH, Gilder KM, Reah C, Howell KM, McAfee PC. **Long-term Outcomes of the US FDA IDE Prospective, Randomized Controlled Clinical Trial Comparing PCM Cervical Disc Arthroplasty with Anterior Cervical Discectomy and Fusion.** *Spine* 2015; 40(10):674-83
33. Reichel LM, Hipp J, Fuentes A, Reitman CA. **Quantitative Analysis Of Cervical Flexion-Extension Radiographs In Rheumatoid Arthritis.** *J Spinal Disorders Tech* 2015; 28:E478-E481

34. Weiner BK, Vilendecic M, Ledic D, Eustacchio S, Hipp JA. **Endplate Changes Following Discectomy: Natural History and Associations Between Imaging and Clinical Data.** *Eur Spine J* 2015; 24:2449-2457
35. Rhee JM, Chapman JR, Norvell DC, Smith J, Sherry NA, Riew KD. **Radiologic Determination of Post-operative Cervical Fusion: A Systematic Review.** *Spine* 2015; 40:974-992
36. Staub BN, Holman PJ, Reitman CA, Hipp JA. **Sagittal Plane Lumbar Intervertebral Motion During Seated Flexion-Extension in 658 Asymptomatic, Non-degenerated Levels.** *J Neurosurgery Spine* 2015; 23(6):731-8
37. Garcia Jr R, Yue JJ, Blumenthal S, Coric D, Patel VV, Leary SP, *et al.* **Lumbar Total Disc Replacement for Discogenic Low Back Pain: Two-year Outcomes of the activL Multicenter Randomized Controlled IDE Clinical Trial.** *Spine* 2015; 40(24):1873-81
38. Ledic D, Vukas D, Grahovac G, Barth M, Bouma GJ, Vilendecic M. **Effect of Anular Closure on Disk Height Maintenance and Reoperated Recurrent Herniation Following Lumbar Discectomy: Two-Year Data.** *Journal of Neurological Surgery Part A: Central European Neurosurgery* 2015; 76(03):211-8
39. Wang T, Fielding LC, Parikh A, Kothari M, Alamin T. **Sacral Spinous Processes: A Morphologic Classification and Biomechanical Characterization of Strength.** *The Spine Journal* 2015; 15(12):2544-51
40. Bae HW, Laurysen C, Maislin G, Leary S, Musacchio Jr MJ. **Therapeutic Sustainability and Durability of coflex Interlaminar Stabilization After Decompression for Lumbar Spinal Stenosis: A Four Year Assessment.** *International Journal of Spine Surgery* 2015; 9
41. Sardar Z, Alexander D, Oxner W, Plessis Sd, Yee A, Wai EK, *et al.* **Twelve-Month Results of a Multicenter, Blinded, Pilot Study of a Novel Peptide (B2A) in Promoting Lumbar Spine Fusion.** *Journal of Neurosurgery: Spine* 2015; 22(4):358-66
42. Schätz C, Ritter-Lang K, Gössel L, Dreßler N. **Comparison of Single-Level and Multiple-Level Outcomes of Total Disc Arthroplasty: 24-Month Results.** *International Journal of Spine Surgery* 2015; 9
43. Bae HW, Kim KD, Nunley PD, Jackson RJ, Hisey MS, Davis RJ, Hoffman GA, Gaede SE, Danielson III GO, Peterson DL. **Comparison of Clinical Outcomes of One and Two-level Total Disc Replacement: 4-Year Results from a Prospective, Randomized, Controlled, Multicenter IDE Clinical Trial.** *Spine* 2015; 40:759-766
44. Rihn JA, Radcliff KE, Hipp JA, Vaccaro AR, Hilibrand AS, Anderson DG, Albert TJ. **Radiographic Variables that May Predict Clinical Outcomes in Cervical Disc Replacement Surgery.** *J Spinal Disord Tech* 2015; 28(3):106-113
45. Koller H. **Biomechanica Quirurgica de la Columna Cervical (Chapter 6).** In: *Cirugía de la Columna Cervical*. eds Gonzalez Diaz and Koller H. *Editorial Medica Panamericana, Mexico*, 2015
46. Patel VV, Whang PG, Haley TR, Bradley WD, Nunley PD, Davis RP, *et al.* **Superior Interspinous Process Spacer for Intermittent Neurogenic Claudication Secondary to Moderate Lumbar Spinal Stenosis: Two-year Results from a Randomized Controlled FDA-IDE Pivotal Trial.** *Spine* 2015; 40(5):275-82
47. Gibson JNA, Depreitere B, Pflugmacher R, Schnarke KJ, Fielding LC, Alamin TF, Goffin J. **Decompression and Paraspinal Tension Band: A Novel Treatment Method for Patients with Lumbar Spinal Stenosis and Degenerative Spondylolisthesis.** *The Spine J* 2015; 15(Suppl 3):23S-32S
48. Cao F, Liu T, Xu Y, Han H, Dong R, Feng S. **Comparison of Clinical and Radiographic Changes After Bryan Disc Arthroplasty versus ACDF: A 60-Month Follow-Up on 120 Patients.** *World J Neuroscience* 2015; 40-48
49. Davis RJ, Nunley PD, Kim KD, Hisey MS, Jackson RJ, Bae HW, Hoffman GA, Gaede SE, Danielson III GO, Gordon C. **Two-level Total Disc Replacement with Mobi-C Cervical Artificial Disc Versus Anterior Discectomy and Fusion: A Prospective, Randomized, Controlled Multicenter Clinical Trial with 4-Year Follow-up Results.** *Journal of Neurosurgery: Spine* 2015; 22(1):15-25
50. Hisey MS, Bae HW, Davis R, Gaede S, Hoffman G, Kim K, Nunley PD, Peterson D, Rashbaum RF, Stokes J. **Prospective, Randomized Comparison of Cervical Total Disc Replacement vs. Anterior Cervical Fusion: Results at 48 Months Follow-up.** *J Spinal Disorders & Tech* 2015; 28(4):E237-243
51. Derrick SM, Raxter MH, Hipp JA, Goel P, Chan EF, Love JC, Wiersema JM, Akella NS. **Development of a Computer-Assisted Forensic Radiographic Identification Method Using the Lateral Cervical and Lumbar Spine.** *Journal of Forensic Sciences* 2015; 60(1):5-12
52. Anekstein Y, Floman Y, Smorgick Y, Rand N, Millgram M, Mirovsky Y. **Seven Years Follow-up for Total Lumbar Facet Joint Replacement (TOPS) in the Management of Lumbar Spinal Stenosis and Degenerative Spondylolisthesis.** *European Spine Journal* 2015:1-9

53. Eastlack RK, Garfin SR, Brown CR, Meyer C. **Osteocel® Plus Cellular Allograft in Anterior Cervical Discectomy and Fusion (ACDF). Evaluation of Clinical and Radiographic Outcomes from a Prospective Multi-center Study.** *Spine* 2014; 39(22):E1331-E1337
54. Gornet MF, Schranck F, Wharton ND, Beall DP, Jones E, Myers ME, Hipp JA. **Optimizing Success with Lumbar Disc Arthroplasty.** *Eur Spine J* 2014; 23:2127-2135
55. Suchomel P, Jurak L, Antinheimo J, Pohjola J, Stulik J, Meisel HJ, Cabraja M, Woiciechowsky C, Bruchmann B, Shackelford I, Arregui R, Sola S. **Does Sagittal Position of the CTDR-related Centre of Rotation Influence Functional Outcome?** *Eur Spine J* 2014; 23:1124-1134
56. Hisey MS, Bae HW, Davis R, Gaede S, Hoffman G, Kim K, Nunley PD, Peterson D, Rashbaum R, Stokes J. **Multi-center, Prospective, Randomized, Controlled Investigational Device Exemption Clinical Trial Comparing Mobi - C Cervical Artificial Disc to Anterior Discectomy and Fusion in the Treatment of Symptomatic Degenerative Disc Disease in the Cervical Spine.** *Int J Spine Surg* 2014; 8(7)
57. Guyer RD, Pettine K, Roh JS, Dimmig TA, Coric D, McAfee PC, Ohnmeis DO. **Comparison of 2 Lumbar Total Disc Replacements.** *Spine* 2014; 39(12):925-931
58. Hou Y, Liu Y, Yuan W, Wang X, Chen H, Yang L, Zhang Y. **Cervical Kinematics and Radiological Changes after Discover Artificial Disc Replacement versus Fusion.** *The Spine Journal* 2014; 14(6):867-877
59. Davis R, Auerbach JD, Bae H, Errico TJ. **Can Low-grade Spondylolisthesis be Effectively Treated by Either coflex Interlaminar Stabilization or Laminectomy and Posterior Spinal Fusion? Two-year Clinical and Radiographic Results from the Randomized, Prospective, Multicenter US Investigational Device Exemption Trial.** *J Neurosurgery Spine* 2013; 19(2):174-184
60. Vaccaro A, Beutler W, Peppelman W, Marzluff J, Highsmith J, Mugglin A, DeMuth G, Gudipally M, Baker K. **Clinical Outcomes with Selectively Constrained SECURE-C Cervical Disc Arthroplasty.** *Spine* 2013; 38(26):2227-2239
61. Kowalczyk I, Chaudhary N, Duggal N. **Kinematic Analysis Following Implantation of the PRESTIGE LP.** *The International Journal of Spine Surgery* 2013; 7(1):e118-e122
62. Koller H, Meier O, Zenner J, Mayer M, Hitzl W. **In Vivo Analysis of Cervical Kinematics after Implantation of a Minimally Constrained Cervical Artificial Disc Replacement.** *Eur Spine J* 2013; 22(4):747-758
63. Mayer M, Zenner J, Auffarth A, Blocher M, Figl M, Resch H, Koller H. **Hidden Discoligamentous Instability in Cervical Spine Injuries: Can Quantitative Motion Analysis Improve Detection?** *Eur Spine J* 2013; 22(10):2219-27
64. Davis RJ, Errico TJ, Bae H, Auerbach JD. **Decompression and coflex® Interlaminar Stabilization Compared to Decompression and Instrumented Spinal Fusion for Spinal Stenosis and Low-grade Degenerative Spondylolisthesis. Two-year Results from the Prospective, Randomized, Multicenter Food and Drug Administration Investigational Device Exemption Trial.** *Spine* 2013; 38(18):1529-1539
65. Bouma GJ, Barth M, Ledic D, Vilendecic M. **The High-risk Discectomy Patient: Prevention of Reherniation in Patients with Large Annular Defects Using an Annular Closure Device.** *Eur Spine J* 2013; 22(5):1030-1036
66. Yue J, Zhang K, Bai HX, Du J, Cammisa F, Abjornson C, Mo F. **A Comparison of Patients Who Have Undergone 1-Level Versus 2-Level Prodisc Arthroplasty: A Prospective Study With Minimum of 5-Year Follow-up.** *Spine* 2013; 38(14):1194-1198
67. Parker SL, Grahovac G, Vukas D, Vilendecic M, Ledic D, McGirt MJ, Carragee EJ. **Effect of an Annular Closure Device (Barricaid) on Same Level Recurrent Disc Herniation and Disc Height Loss After Primary Discectomy: Two-Year Results of a Multi-Center Prospective Cohort Study.** *J Spine Disord Tech* 2013
68. Trummer M, Eustacchio S, Barth M, Klassen PD, Stein S. **Protecting Facet Joints Post-lumbar Discectomy: Barricaid Annular Closure Device Reduces Risk of Facet Degeneration.** *Clinical Neurology and Neurosurgery* 2013; 1440-1445
69. Lador R, Liberman S, Ben-Galim P, Dreiangel N, Reitman CA, Hipp JA. **A Cadaver Study to Compare Vertebral Augmentation with a High-viscosity Cement to Augmentation with Conventional Low-viscosity Cement.** *J Spinal Disord Tech* 2013; 26(2):68-73
70. Bastian L, Schils F, Tillman J, Fueredi G. **A Randomized Trial Comparing 2 Techniques of Balloon Kyphoplasty and Curette Use for Obtaining Vertebral Body Height Restoration and Angular-Deformity Correction in Vertebral Compression Fractures Due to Osteoporosis.** *Am J of Neuroradiology* 2013; 34(3):666-675
71. Ryu WHA, Kowalczyk I, Duggal N. **Long-term Kinematic Analysis of Cervical Spine After Single-level Implantation of Bryan Cervical Disc Prosthesis.** *The Spine Journal* 2013; 13(6):628-634

72. Phillips FM, Lee JY, Geisler FH, Cappuccino A, Chaput CD, DeVine JG, Reah C, Gilder KM, Howell KM, McAfee PC. **A Prospective, Randomized, Controlled Clinical Investigation Comparing PCM Cervical Disc Arthroplasty with Anterior Cervical Discectomy and Fusion: 2-Year Results from the US FDA IDE Clinical Trial.** *Spine* 2013; 38(15):E907-E918
73. Zigler JE, Delamarter R, Murrey D, Spivak J, Janssen M. **ProDisc-C and Anterior Cervical Discectomy and Fusion as Surgical Treatment for Single-Level Cervical Symptomatic Degenerative Disc Disease. Five-Year Results of a Food and Drug Administration Study.** *Spine* 2013; 38(3):203-209
74. Dickinson LD, Phelps J, Summa CD, Vanichkachorn JS, Jeshuran WR, Randall JB, Mimran RI, Mitchell M, Macenski MM, Laurysen C. **Facet-sparing Decompression With a Minimally Invasive Flexible Microblade Shaver: A Prospective Operative Analysis.** *Journal of Spinal Disorders & Techniques* 2013; 26(8):427-436
75. Ritter Lang K, Dreßler N, Schatz C, Gossel L. **Treatment of Lumbar Degenerative Disc Disease Using a Novel, Compressible Core Prosthesis: 24-Month Results.** *Journal of Spine* 2013
76. Zigler JE, Jamieson G, Delamarter RB. **Five-Year Adjacent-level Degenerative Changes in Patients with Single-level Disease Treated Using Lumbar Total Disc Replacement with ProDisc-L versus Circumferential Fusion.** *J Neurosurg Spine* 2012; 17:504-511
77. Bastian L, Schils F, Tillman JB, Fueredi G. **A Randomized Trial Comparing 2 Techniques of Balloon Kyphoplasty and Curette Use for Obtaining Vertebral Body Height Restoration and Angular-Deformity Correction in Vertebral Compression Fractures due to Osteoporosis.** *Am J Neuroradiol* 2012; 34(3):666-675
78. Laurysen C, Berven S, Mimran R, Summa C, Sheinberg M, Miller L, Block J. **Facet-sparing Lumbar Decompression with a Minimally Invasive Flexible MicroBlade Shaver® versus Traditional Decompression: Quantitative Radiographic Assessment.** *Clinical Interventions in Aging* 2012; 7:257-266
79. Selby MD, Clark SR, Hall DJ, Freeman BJC. **Radiologic Assessment of Spinal Fusion.** *J Am Acad Orthop Surg* 2012; 20:694-703
80. Patwardhan AG, Tzermiadianos MN, Tsitsopoulos PP, Voronov LI, Renner SM, Reo ML, Carandang G, Ritter-Lang K, Havey RM. **Primary and Coupled Motions After Cervical Total Disc Replacement Using a Compressible Six-Degree-of-Freedom Prosthesis.** *Eur Spine J* 2012; (Suppl. 5):S618-S629
81. Laurysen CL, Coric D, Dimmig T, Musante D, Ohnmeiss DD, Stubbs HA. **Cervical Total Disc Replacement Using a Novel Compressible Prosthesis: Results from a Prospective Food and Drug Administration-regulated Feasibility Study with 24-Month Follow-up.** *Int J Spine Surg* 2012:e1-e7
82. Tsitsopoulos PP, Wojewnik B, Voronov LI, Havey RM, Renner SM, Zelenakova J, McIntosh B, Carandang G, Abjornson C, Patwardhan AG. **Effect of Prosthesis Endplate Lordosis Angles on L5-S1 Kinematics After Disc Arthroplasty.** *European Spine Journal* 2012; 21(Suppl. 5):S585-591
83. Patwardhan AG, Havey RM, Wharton ND, Tsitsopoulos PP, Newman P, Carandang G, et al. **Asymmetric Motion Distribution Between Components of a Mobile-Core Lumbar Disc Prosthesis: An Explanation of Unequal Wear Distribution in Explanted CHARITÉ Polyethylene Cores.** *J Bone Joint Surg Am* 2012; 94:846-854
84. Zigler JE, Delamarter RB. **Five-year Results of the Prospective, Randomized, Multicenter, Food and Drug Administration Investigational Device Exemption Study of the ProDisc-L Total Disc Replacement versus Circumferential Arthrodesis for the Treatment of Single-level Degenerative Disc Disease.** *Journal of Neurosurgery Spine* 2012; 17(6):493-501
85. Zigler JE. **Five-Year Results of the ProDisc-L Multicenter, Prospective, Randomized, Controlled Trial Comparing ProDisc-L with Circumferential Spinal Fusion for Single-Level Disabling Degenerative Disk Disease.** *Seminars in Spine Surgery* 2012; 24:25-31
86. Auerbach JD, Anakwenze OA, Milby AH, Lonner BS, Balderston RA. **Segmental Contribution Towards Total Cervical Range of Motion: A Comparison of Cervical Disc Arthroplasty to Fusion.** *Spine* 2011; 36(25):E1593-1599
87. Duggal N, Bertagnoli R, Rabin D, Wharton N, Kowalczyk I. **ProDisc-C. An in Vivo Kinematic Study.** *J Spinal Disord Tech* 2011; 24:334-339
88. Delamarter R, Zigler JE, Balderston RA, Cammisa FP, Goldstein JA, Spivak JM. **Prospective, Randomized, Multicenter Food and Drug Administration Investigational Device Exemption Study of the ProDisc-L Total Disc Replacement Compared with Circumferential Arthrodesis for the Treatment of Two-level Lumbar Degenerative Disc Disease: Results at Twenty-Four Months.** *J Bone Joint Surg Am* 2011; 93:705-15

89. Coric D, Nunley PD, Guyer RD, Musante D, Carmody CN, Gordon CR, Laurysen C, Ohnmeiss DD, Boltz MO. **Prospective, Randomized, Multicenter Study of Cervical Arthroplasty: 269 Patients from the Kineflex|C Artificial Disc Investigational Device Exemption Study with a Minimum 2-year Follow-up.** *J Neurosurg: Spine* 2011; 15(4):348-358
90. Kelly MP, Mok JM, Frisch RF, Tay BK. **Adjacent Segment Motion After Anterior Cervical Discectomy and Fusion versus ProDisc-C Cervical Total Disk Arthroplasty.** *Spine* 2011; 36(15):1171-1179.
91. Ghiselli G, Wharton N, Wong D, Jatana S. **Prospective Analysis of Imaging Prediction of Pseudoarthrosis after Anterior Cervical Discectomy and Fusion: Computed Tomography vs. Flexion-Extension Motion Analysis with Intraoperative Correlation.** *Spine* 2011; 36(6):463-468
92. Pearson AM, Spratt KF, Genuario J, McGough W, Kosman K, Lurie J, Sengupta DK. **Precision of Lumbar Intervertebral Measurements: Does a Computer-Assisted Technique Improve Reliability?** *Spine* 2011; 36(7):572-580
93. Jackson ER, Lador R, Ben-Galim PJ, Reitman CA, Hipp JA. **Reference data for Interpreting Widening Between Spinous Processes in the Lumbar Spine.** *The Spine Journal* 2011; 11:2336-339
94. Olabisi RM, Lazard Z, Heggeness MH, Moran KM, Hipp JA, Dewan AK, Davis AR, West JL, Olmsted-Davis EA. **An Injectable Method for Noninvasive Spine Fusion.** *The Spine Journal* 2011; 11(6):545-556
95. Sasso RC, Metcalf NH, Hipp JA, Wharton ND, Anderson PA. **Sagittal Alignment After Bryan Cervical Arthroplasty.** *Spine* 2011; 36(13):991-6
96. Lador R, Ben-Galim PJ, Hipp JA. **Motion Within the Unstable Cervical Spine During Patient Maneuvering: The Neck Pivot-shift Phenomenon.** *The Journal of Trauma* 2011; 70(1):247-250
97. Ho JM, Ben-Galim P, Weiner BK, Karbach LE, Moron FE, Reitman CA, Heggeness MH, Hipp JA. **Towards the Establishment of Optimal CT Parameters for the Assessment of Lumbar Spinal Fusion.** *The Spine Journal* 2011; 11(7):636-640
98. Park DK, Lin EL, Phillips FM. **Index and Adjacent Level Kinematics After Cervical Disc Replacement and Anterior Fusion: In Vivo Quantitative Radiographic Analysis.** *Spine* 2011; 36:721-730
99. Du J, Li M, Liu H, Meng H, He Q, Luo Z. **Early Follow-up Outcomes After Treatment of Degenerative Disc Disease with the Discover Cervical Disc Prosthesis.** *The Spine Journal* 2011; 11(4):281-289
100. Kowalczyk I, Lazaro BCR, Fink M, Rabin D, Duggal N. **Analysis of in Vivo Kinematics of 3 Different Cervical Devices: Bryan Disc, ProDisc-C, and Prestige LP Disc.** *Journal of Neurosurgery: Spine* 2011:1-6
101. Dewan AK, Dewan RA, Calderon N, Fuentes A, Lazard Z, Davis AR, Heggeness M, Hipp JA, *et al.* **Assessment Mechanical Integrity of Spinal Fusion by In Situ Endochondral Osteoinduction in the Murine Model.** *J Orthop Surg Res* 2010; 5:58
102. Lador R, Dreiangel N, Ben-Galim PJ, Hipp JA. **A Pictorial Classification Atlas of Cement Extravasation with Vertebral Augmentation.** *The Spine Journal* 2010; 10(12):1118-1127
103. Eubanks AC, Hipp JA, Lador R, Ben-Galim PJ, Reitman CA. **Reference Data for Assessing Widening Between Spinous Processes in the Cervical Spine and the Responsiveness of These Measures to Detecting Abnormalities.** *Spine J.* 2010; 10(3):230-7
104. Trautwein FT, Lowery GL, Wharton ND, Hipp JA, Chomiak RJ. **Determination of the In Vivo Posterior Loading Environment of the Coflex Interlaminar-interspinous Implant.** *Spine J* 2010; 10(3):244-51
105. Powell JW, Sasso RC, Metcalf NH, Anderson PA, Hipp JA. **Quality of Spinal Motion With Cervical Disk Arthroplasty: Computer-aided Radiographic Analysis.** *J Spinal Disord Tech* 2010; 23(2):89-95
106. Park JJ, Quirno M, Cunningham MR, Schwarzkopf R, Bendo JA, Spivak JM, Goldstein JA. **Analysis of Segmental Cervical Spine Vertebral Motion After Prodisc-C Cervical Disc Replacement.** *Spine* 2010; 35(8):E285-9
107. Lazaro BC, Yucesoy K, Yuksel KZ, Kowalczyk I, Rabin D, Fink M, Duggal N. **Effect of Arthroplasty Design on Cervical Spine Kinematics: Analysis of the Bryan Disc, ProDisc-C, and Synergy Disc.** *Neurosurg Focus* 2010; 28(6):E6
108. Pneumaticos SG, Chatziioannou AN, Hipp JA, Chatziioannou S N. **Prediction of Successful Discectomy using MRI Quantitation of Dural Sac and Herniated Disc Dimensions.** *Int J Clin Practice* 2010; 64(1):13-18
109. Radcliff KE, Ben-Galim P, Dreiangel N, Martin SD, Reitman CA, Lin JN, Hipp JA. **Comprehensive CT Assessment of the Upper-cervical Anatomy: What is Normal?** *The Spine Journal* 2010; 10:219-229
110. Ben-Galim P, Dreiangel N, Mattox KL, Reitman CA, Kalantar BS, Hipp JA. **Extrication Collars Can Result in Abnormal Separation Between Vertebrae in the Presence of a Dissociative Injury.** *The Journal of Trauma* 2010; 69(2):447-50

111. Kalantar BS, Hipp JA, Reitman CA, Dreiangel N, Ben-Galim P. **Diagnosis of unstable cervical spine injuries: Laboratory support for the use of axial traction to diagnose cervical spine instability.** *The Journal of Trauma* 2010; 69(4):889-895.
112. Dreiangel N, Ben-Galim P, Ladro R, Hipp JA. **Occipitocervical Dissociative Injuries: Common in Blunt Trauma Fatalities and Better Detected with Objective Computed Tomography-based Measurements.** *The Spine Journal* 2010; 10:704-707
113. Pimenta L, Springmuller R, Lee CK, Oliveira L, Roth SE, Ogilvie WF. **Clinical Performance of an Elastomeric Lumbar Disc Replacement: Minimum 12 Months Follow-up.** *SAS Journal* 2010; 4:14-25
114. Reyes-Sanchez A, Miramontes V, Olivarez LMR, Aquirre AA, Quiroz AO, Zarate-Kalfopulos B. **Initial Clinical Experience with a Next-generation Artificial Disc for the Treatment of Symptomatic Degenerative Cervical Radiculopathy.** *SAS Journal* 2010; 4:9-15
115. Phillips FM, Allen RT, Regan JJ, Albert TJ, Cappuccino A, Devine JG, Ahrens JE, Hipp JA, McAfee PC. **Cervical Disc Replacement in Patients with and without Previous Adjacent Level Fusion Surgery: A Prospective Study.** *Spine* 2009; 34(6):556-65
116. Murrey D, Janssen M, Delemarter R, Goldstein J, Zigler J, Tay B, Darden B. **Results of the Prospective, Randomized, Controlled Multicenter Food and Drug Administration Investigational Device Exemption Study of the ProDisc-C Total Disc Replacement versus Anterior Discectomy and Fusion for the Treatment of 1-Level Symptomatic Cervical Disc Disease.** *Spine J* 2009; 9(4):275-86
117. Guyer RD, McAfee PC, Banco RJ, Bitan FD, Cappuccino A, Geiseler FH, Hochschuler SH, Holt RT, Jemis LG, Majd ME, Regan JJ, Tromanhauser SG, Wong DC, Blumenthal SL. **Prospective, Randomized, Multicenter Food and Drug Administration Investigational Device Exemption Study of Lumbar Total Disc Replacement with the CHARITE[®] Artificial Disc versus Lumbar Fusion: Five-year Follow-up.** *Spine J* 2009; 9(5):374-86
118. Peng C, Quirno M, Bendo JA, Spivak JM, Goldstein JA. **Effect of Intervertebral Disc Height on Postoperative Motion and Clinical Outcomes After Prodisc-C Cervical Disc Replacement.** *Spine J* 2009; 9(7):551-5
119. Anakwenze OA, Auerbach JD, Milby AH, Lonner BS, Balderston RA. **Sagittal Cervical Alignment after Cervical Disc Arthroplasty and Anterior Cervical Discectomy and Fusion: Results of a Prospective, Randomized, Controlled Trial.** *Spine* 2009; 34(19):2001-7
120. Ekman P, Moller H, Shalabi A, *et al.* **A Prospective Randomised Study on the Long-term Effect of Lumbar Fusion on Adjacent Disc Degeneration.** *Eur Spine J* 2009; 18:1175-86
121. Park SA, Ordway NR, Fayyazi AH, Fredrickson BE, Yuan HA. **Comparison of Cobb Technique, Quantitative Motion Analysis, and Radiostereometric Analysis in Measurement of Segmental Range of Motions After Lumbar Total Disc Arthroplasty.** *J Spinal Disord Tech* 2009; 22:602-609
122. Rabin D, Bertagnoli R, Wharton N, Pickett GE, Duggal N. **Sagittal Balance Influences Range of Motion: An In Vivo Study with the ProDisc-C.** *Spine J* 2009; 9(2):128-33
123. Auerbach JD, Jones KJ, Milby AH, Anakwenze OA, Balderston RA. **Segmental Contribution Toward Total Lumbar Range of Motion in Disc Replacement and Fusions: A Comparison of Operative and Adjacent Levels.** *Spine* 2009; 34(23):2510-7
124. Hipp J and Wharton N. **Quantitative Motion Analysis (QMA) of Motion Preserving and Fusion Technologies for the Spine.** In: *Motion Preservation Surgery of the Spine: Advanced Techniques and Controversies.* eds Yue J, Bertagnoli R, McAfee P, and An H. Elsevier, New York, 2008
125. Auerbach J, Namdari S, Milby A, *et al.* **The Parallax Effect in the Evaluation of Range of Motion in Lumbar Total Disc Replacement.** *The SAS Journal* 2008
126. Acosta FL, Christensen FB, Coe JD, Jahng T, Kitchel SH, Meisel HJ, Schnoring M, Wingo CH, Ames CP. **Early Clinical & Radiographic Results of NFix II Posterior Dynamic Stabilization System.** *SAS Journal* 2008; 2(2):69-75
127. Patwardhan AG, Voronov LI, Renner SM, Carandang G, Havey RM. **Effect of Compressive Preload Magnitude on the Quality and Quantity of Motion of the Lumbar Spine after Total Disc Arthroplasty Using a Compressible Disc Prosthesis.** *The Spine Journal* 2008; 8:1S-191S doi:10.1016/j.spinee.2008.06.126
128. Yaszay B, Bendo J, Goldstein JA, Quirno M, Spivak JM, Errico TJI. **Effect of Intervertebral Disk Height on Post-operative Motion Following Prodisc[™] Lumbar Disk Replacement.** *Spine* 2008; 33:508-512; discussion 513
129. Peng CW, Quirno M, Goldstein J, Levine D, Errico T, Bendo J, Spivak J. **Effect of Intervertebral Disk Height on Post-operative Motion Following Prodisc-C Cervical Disk Replacement.** *Spine* 2008
130. Sasso RC, Best NM. **Cervical Kinematics After Fusion and Bryan Disc Arthroplasty.** *J Spinal Disord Tech* 2008; 21:1-19

131. Foley KT, Mroz TE, Arnold PM, *et al.* **Randomized, Prospective, and Controlled Clinical Trial of Pulsed Electromagnetic Field Stimulation for Cervical Fusion.** *The Spine Journal* 2008; 436-442
132. Fassett D, Apfelbaum R, Hipp J. **Comparison of Fusion Assessment Technique: Computer-Assisted Versus Manual Measurement.** *J Neurosurgery: Spine* 2008; 8:544-547.
133. Hwang H, Hipp JA, Ben-Galim P, Reitman CA. **Threshold Cervical Range-of-Motion Necessary to Detect Abnormal Intervertebral Motion in Cervical Spine Radiographs.** *Spine* 2008; 33:E261-E267.
134. Auerbach JD, Tally WC, Balderston RA. **Radiographic Evaluation in Lumbar Total Disc Replacement: Assessment of Potential Candidacy and Range of Motion.** *Seminars in Spine Surgery* 2007; 19:87-97.
135. Sears R, Sekhon L, Duggal N, Williamson O. **Segmental Malalignment With the Bryan Cervical Disc Prosthesis – Does it Occur?** *J Spinal Disord Tech* 2007; 20:1-6
136. Rabin D, Pickett GE, Bisnaire L, Duggal N. **The Kinematics of Anterior Cervical Discectomy and Fusion versus Artificial Cervical Disc: A Pilot Study.** *Neurosurgery* 2007; 61(3 Suppl):100-5
137. Sears R, Duggal N, Sekhon L, Williamson O. **Segmental Malalignment with the Bryan Cervical Disc Prosthesis – Contributing Factors.** *J Spinal Disord Tech* 2007; 20(2)
138. Goldberg G, Albert T, Vaccaro A, Hilibrand A, Anderson G, Wharton N. **Short-Term Comparison of Cervical Fusion with Static and Dynamic Plating using Computerized Quantitative Motion Analysis.** *Spine* 2007; 32: E371-E375
139. Sasso RC, Smucker JD, Hacker RJ, Heller JG. **Clinical Outcomes of BRYAN Cervical Disc Arthroplasty: A Prospective, Randomized, Controlled, Multicenter Trial with 24-month Follow-up.** *J Spinal Disord Tech* 2007; 20:481-491
140. Welch WC, Gerzten PC, Cheng BC, Maxwell JH. **Dynesys Spinal Instrumentation System.** In: *Spinal Reconstruction: Clinical Examples of Applied Basic Science, Biomechanics and Engineering.* eds Lewandrowski KU, Yaszemski MJ, Kalfas IH, Park P, McLain RF, Trantolo DJ. New York, NY: Taylor & Francis Group (Informa Healthcare) 2007
141. Taylor M, Hipp JA, Gertzbein SD, Gopinath S, Reitman CA. **Observer Agreement in Assessing Flexion-Extension X-Rays of the Cervical Spine, with and without the Use of Quantitative Measurements of Intervertebral Motion.** *Spine J* 2007; 7:654-658
142. Subramanian N, Reitman CA, Nguyen L, Hipp JA. **Radiographic Assessment and Quantitative Motion Analysis of the Cervical Spine After Serial Sectioning of the Anterior Ligamentous Structures.** *Spine* 2007; 32:518-526
143. Schneider AM, Hipp JA, Nguyen L, Reitman CA. **Reduction in Head and Intervertebral Motion Provided by Seven Contemporary Cervical Orthoses in 45 Individuals.** *Spine* 2007; 32:E1-E6
144. Mourning D, Reitman CA, Heggeness M, Esses S, Hipp JA. **Initial Intervertebral Stability After Anterior Cervical Discectomy and Fusion with Plating.** *Spine* 2007; 7:643-646
145. Sears WR, McCombe PF, Sasso RC. **Kinematics of Cervical and Lumbar Total Disc Replacement.** *Seminars in Spine Surgery* 2006; 18(2):117-129
146. Delamarter RB, Maxwell J, Davis R, Sherman J, Welch W. **Nonfusion Application of the Dynesys System in the Lumbar Spine: Early Results from the IDE Multicenter Trial.** *Proceedings of the NASS 27th Annual Meeting, The Spine Journal.* 2006; 6S: 77S
147. Sekhon LH, Sears W, Duggal N. **Cervical Arthroplasty After Previous Surgery: Results of Treating 24 Discs in 15 Patients.** *Neurosurg Spine* 2005; 3(5):335-41
148. Pickett G, Rouleau J, Duggal N. **Kinematic Analysis of the Cervical Spine Following Implantation of an Artificial Cervical Disc.** *Spine* 2005; 30:1949-1954
149. Hipp JA, Reitman CA, Wharton N. **Defining Pseudoarthrosis in the Cervical Spine with Differing Motion Thresholds.** *Spine* 2005; 30:209-210
150. Zhao KD, Yang C, Zhao C, Stans AA, An K-N. **Assessment of Noninvasive Intervertebral Motion Measurements in the Lumbar Spine.** *J Biomechanics* 2005; 38:1943-1946
151. Brown T, Reitman CA, Nguyen L, Hipp JA. **Intervertebral Motion after Incremental Damage to the Posterior Structures of the Cervical Spine.** *Spine* 2005; 30:E503-E508
152. Duggal N, Pickett G, Mitsis D, Keller J. **Early Clinical and Biomechanical Results Following Cervical Arthroplasty.** *Neurosurgical Focus* 2004; 17:62-68

153. Pickett G, Mitsis D, Sekhon L, Sears W, Duggal N. **Effects of a Cervical Disc Prosthesis on Segmental and Cervical Spine Alignment.** *Neurosurgical Focus* 2004; 17:30-35
154. Reitman CA, Hipp JA, Nguyen L, Esses SI. **Changes in Segmental Intervertebral Motion Adjacent to Cervical Arthrodesis. A Prospective Study.** *Spine* 2004; 29:E221-E226
155. Reitman CA, Mauro KM, Nguyen L, Ziegler JM, Hipp JA. **Intervertebral Motion Between Flexion and Extension in Asymptomatic Individuals.** *Spine* 2004; 29:2832-43

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