Spine Imaging Studies Involving Medical Metrics Technology and Methods

Peer-reviewed Journal Papers and Book Chapters

2011

1. Auerbach JD, Okechukwu AA, Milby AH, Lonner BS, Balderston RA. Segmental contribution towards total cervical range of motion: A comparison of cervical disc arthroplasty to fusion. *Spine* 2011.
2. 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* 2011.
3. 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.
4. 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.
5. 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
6. 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.
7. 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.
8. 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.
9. 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
10. Olabisi RM, Lazard Z, Heggeness MH, Moran KM, Hipp JA, Dewan AK, Davis AR, West JL, Olmstead-Davis EA. An injectable method for noninvasive spine fusion. *The Spine Journal* 2011
11. Sasso RC, Metcalf NH, Hipp JA, Wharton ND, Anderson PA. Sagittal alignment after Bryan cervical Arthroplasty. *Spine* 2011; 36(13):991-6
12. 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.
13. 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 (In Press).
14. Patwardhan AG, Havey RM, Wharton ND, Tsitsopoulos PP, Newman P, Carandang G, Voronov LI. Asymmetric Motion Distribution Between Components of a Mobile-Core Lumbar Disc Prosthesis: An explanation of Unequal Wear Distribution in Explanted Charité Polyethylene Cores. *Journal of Bone and Joint Surgery* (In Review).
15. Patwardhan A, Wharton N, Havey R, et al. Instantaneous Centers of Rotation of the Intact Lumbar Spine and Total Disc Replacement: Conceptual Framework and Experimental Observations. *Spine* (In Review).

2010

16. 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.
17. 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.
18. 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.
19. 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.
20. 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.

21. Pneumaticos S, et al. Prediction of Successful Discectomy using MRI Quantitation of Dural Sac and Herniated Disc Dimensions. *Int. J. Clin. Practice* 2010; 64(1):13-18.
22. 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
23. Ben-Galim P, Drieangel 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.
24. 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.
25. 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.
26. 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.
27. 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.

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28. 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.
29. 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.
30. Guyer RD, McAfee PC, Banco RJ, Bitan FD, Cappuccion 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.
31. 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.
32. 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.
33. Guyer RD, McAfee PC, Banco RJ et al. 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; 9:374-86.
34. 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
35. 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.
36. 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.

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37. 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
38. 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
39. 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.
40. Yaszay B, Bendo J, Goldstein JA, Quirno M, Spivak JM, Errico TJl. Effect of Intervertebral Disk Height on Post-operative Motion Following Prodisc™ Lumbar Disc Replacement. *Spine* 2008; 33:508-514
41. Peng CW, Quirno M, Goldstein J, et al. Effect of Intervertebral Disk Height on Post-operative Motion

Following Prodisc-C Cervical Disc Replacement. *Spine* 2008.

42. Sasso RC, Best NM. Cervical kinematics after fusion and bryan disc arthroplasty. *J Spinal Disorders Tech* 2008; 21:1-19
43. 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.
44. Fassett D, Apfelbaum R, Hipp J. Comparison of Fusion Assessment Technique: Computer-Assisted Versus Manual Measurement. *J Neurosurgery: Spine* 2008; 8:544-547.
45. 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.

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46. 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.
47. 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.
48. 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.
49. Sears R, Duggal N, Sekhon L, Williamson O. Segmental Malalignment with the Bryan Cervical Disc Prosthesis – Contributing Factors. *J Spinal Disord Tech*, Vol 20, No 2, Apr 2007.
50. 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.
51. 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.
52. 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.
53. 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.
54. 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.
55. 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.

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56. Sears WR, McCombe PF, Sasso RC. Kinematics of cervical and lumbar total disc replacement. *Seminars in Spine Surgery* 2006; 18(2):117-129.

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57. Sekhon LH, Sears W, Duggal N. Cervical arthroplasty after previous surgery: results of treating 24 discs in 15 patients. Neurosurg *Spine* 2005; Nov;3(5):335-41.
58. Pickett G, Rouleau J, Duggal N. Kinematic analysis of the cevical spine following implantation of an artificial cervical disc. *Spine* 2005; 30:1949-1954.
59. Hipp JA, Reitman CA, Wharton N. Defining pseudoarthrosis in the cervical spine with differing motion thresholds. *Spine* 2005; 30:209-210.
60. 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.
61. 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.

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62. Duggal N, Pickett G, Mitsis D, Keller J. Early clinical and biomechanical results following cervical arthroplasty. *Neurosurgical Focus* 2004; 17:62-68.
63. 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
64. 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.
65. Reitman CA, Mauro KM, Nguyen L, Ziegler JM, Hipp JA. Intervertebral motion between flexion and extension in asymptomatic individuals. *Spine* 2004; 29:2832-43.

Scientific Abstracts, Posters and Proceedings

2011

66. Patwardhan AG, Gössel L, Tsitsopoulos P, Voronov LI, Wharton ND, Potluri T, Zelenakova J, Carandang G, Newman P, Hannon S, Schätz C, Havey RM. Kinematics of the L5-S1 and L4-L5 Segments after Reconstruction Using a Compressible Lumbar Disc Prosthesis. Accepted as a Focused Paper Presentation, 26th Annual Meeting of the North American Spine Society, October 2011, Chicago, IL.
67. Beutler W, Peppelman W, Marzluff JM, Tomaras C, Volcan I, Asdourian P, Mcconnell J, Barker K, Myer J. A prospective, randomized, pivotal study of the SECURE®-C cervical artificial disc: two year outcomes. Presented at the 11th Annual Meeting of The International Society For The Advancement of Spine Surgery, April 2011, Las Vegas, NV.
68. Suchomel P, Sola S, Antinheimo J, Pohjola J, Meisel H-J, Stulik J, Kroppenstedt S, O'Malley M, Sheckleford, I, Woiciechowsky, Bruchmann B, Arregui R, Caroli F, Borm N. Does Sagittal Position of the CTDR Related Center of Rotation Influence Funtional Outcome. Prospective 1 Year Follow-Up Analysis. Presented at the 11th Annual Meeting of The International Society For The Advancement of Spine Surgery, April 2011, Las Vegas, NV.
69. Schaetz CR, Poinmann H, Bruchmann B, Ant M, Ritter-Lang K. Spinal Kinetics M6®-C German Registry: 24 Month Clinical and Radiographic Outcomes. Presented at the 11th Annual Meeting of The International Society For The Advancement of Spine Surgery, April 2011, Las Vegas, NV.
70. Meisel HJ, Suchomel P, Sola S, Antinheimo J, Pohjola J, Stulik J, Kroppenstedt S, Woiciechowsky C, O'Malley M, Shackleford I, Bruchmann B, Arregui R, Caroli F, Borm N. Does CTDR have a lower risk of device subsidence compared to ACDF? 1 year results of a prospective multi-center study. Presented at the 11th Annual Meeting of The International Society For The Advancement of Spine Surgery, April 2011, Las Vegas, NV. Also presented at the 13th Annual Meeting of the Spine Society of Europe (EuroSpine), October 2010, Vienna, Austria.
71. Hisey M, Peterson D, Stoker J, Bae HW, Davis R, Gaede S, Hoffman G, Kim K, Nunley P. Multi-center, prospective, randomized, controlled investigational device exemption study comparing Mobi-C cervical artificial disc to anterior discectomy and fusion in the treatment of symptomatic degenerative disc disease in the cervical spine. Presented at the 11th Annual Meeting of The International Society For The Advancement of Spine Surgery, April 2011, Las Vegas, NV.
72. Garcia R, Yue JY, Blumenthal S. Segmental kinematics before and after lumbar TDR: a prospective randomized study comparing unconstrained, semi-constrained, and constrained implants. Presented at the 11th Annual Meeting of The International Society For The Advancement of Spine Surgery, April 2011, Las Vegas, NV.
73. Coric D, Nunley PD, Guyer RD, Dimming T, Carmody C, Gordon C, Lauryssen. Analysis of adjacent segment degeneration: results of prospective, randomized study comparing cervical total disc replacement vs. anterior cervical fusion. Presented at the 11th Annual Meeting of The International Society For The Advancement of Spine Surgery, April 2011, Las Vegas, NV.
74. Marzluff JM, Highsmith J, Baker K, Myer J. A study of adjacent level anterior treatments in a randomized, prospective clinical trial of the SECURE®-C cervical artificial disc. Presented at the 11th Annual Meeting of The International Society For The Advancement of Spine Surgery, April 2011, Las Vegas, NV.
75. Rischke B, Ross ER, Jollenbeck B, Hipp JA, Zimmers KB. An association between the center of rotation and clinical outcome in patients implanted with a viscoelastic lumbar total disc replacement. Presented at the 11th Annual Meeting of The International Society For The Advancement of Spine Surgery, April 2011, Las Vegas, NV.
76. Gornet MF, Schranck FW, Peloza JH, Dryer RF, Burkus JK, Jones EA, Hipp JA, Wharton ND. Role of endplate morphology on lumbar disc Arthroplasty clinical and radiographic outcomes. Presented at the 11th Annual Meeting of The1 International Society For The Advancement of Spine Surgery, April 2011, Las Vegas, NV.
77. Fayyazi A, Smith K, Buckley R, Lorio M, Yuan P, Devine J. Comparison of patients undergoing 1- and 2-level lumbar fusions using Demineralized bone matrix (Optecure, Exactech, Inc.) as a bone graft extender when compared with autograft. Presented at the 11th Annual Meeting of The International Society For The Advancement of Spine Surgery, April 2011, Las Vegas, NV.
78. Davis R, Bae HW, Gaede S, Gordon C, Hisey M, Hoffman G, Kim K, Nunley P. Multi-center, prospective, randomized, controlled investigational device exemption study comparing 2-level Mobi-C® cervical artificial disc to anterior discectomy and fusion in the treatment of symptomatic degenerative disc disease in the cervical spine. Presented at the 11th Annual Meeting of The International Society For The Advancement of Spine Surgery, April 2011, Las Vegas, NV.

2010

79. Garcia R, Yue J, Newman P, Wharton N, Hipp J. Effect of Operative Level and Lumbar TDR Design on Disc Height, Settling, and Subsidence: A Prospective Randomized Study Comparing an Unconstrained, Semi-Constrained, and Constrained Implant. Presented at the 10th Annual Meeting of the Spine Arthoplasty

Society, April 2010, New Orleans, LA.

80. Garcia R., Yue J., Newman P., Wharton N., Hipp J. Prospective Randomized Study of Interpedicular Motion Pre and Post Lumbar TDR: Comparison of Unconstrained, Semi-Constrained, and Constrained TDR Designs. Presented at the 10th Annual Meeting of the Spine Arthoplasty Society, April 2010, New Orleans, LA.

81. Anand N, Robie B, Wharton N, Ferrara L, Yonemura K, Castellvi AE. Quantity and Quality of Motion in Stenosis Patients. Presented at the 10th Annual Meeting of the Spine Arthoplasty Society, April 2010, New Orleans, LA (poster).

82. Castellvi AE, Khandha A, Wharton N, Ferrara L, Anand N, Cheng J. An analysis of the PostOp performance of a lumbar posterior dynamic stabilization (PDS) implant through measurement of Range Of Motion (ROM) and InterPedicular Travel (IPT). Presented at the 10th Annual Meeting of the Spine Arthoplasty Society, April 2010, New Orleans, LA (poster).

83. Kitchel S, Wharton N, Khandha A. Clinical assessment of Adjacent level effects (ALE) induced by a lumbar posterior dynamic stabilization (PDS) implant through measurement of Range Of Motion (ROM) and InterPedicular Travel (IPT). Presented at the 10th Annual Meeting of the Spine Arthoplasty Society, April 2010, New Orleans, LA.

84. Robie B, Johnson S, Lucey M, Khandha A, Adams R. Pedicle Screw Fractures in an IDE study of a Posterior Lumbar Dynamic Stabilization Implant - A Failure Investigation. Presented at the 10th Annual Meeting of the Spine Arthoplasty Society, April 2009, New Orleans, LA (poster).

85. Gornet MF, Peloza JH, Dryer RF, Jones, EA, Hipp JA, Schrank FW. Relationship between Changes in Lumbar Lordosis and Clinical Outcomes Following Lumbar Disc Arthroplasty. Focused Paper Presentation, 25th Annual Meeting of the North American Spine Society, October 2010, Orlando, FL.

86. Gornet MF, Peloza JH, Dryer RF, Jones, EA, Hipp JA, Schrank FW. Role of Endplate Morphology on Lumbar Disc Arthroplasty Clinical and Radiographic Outcomes. Presented at the 17th International Meeting on Advanced Spine Technologies, July 2010, Toronto, ON, Canada (poster).

87. Gornet MF, Peloza JH, Jones, EA, Hipp JA, Gormet M, Schrank FW. Relationship between Global Range of Motion and Clinical Outcomes in Lumbar Disc Arthroplasty Patients. Presented at the 17th International Meeting on Advanced Spine Technologies, July 2010, Toronto, ON, Canada.

88. Gornet MF, Peloza JH, Dryer RF, Jones, EA, Hipp JA, Schrank FW. Relationship between Changes in Lumbar Lordosis and Clinical Outcomes Following Lumbar Disc Arthroplasty. Presented at the 17th International Meeting on Advanced Spine Technologies, July 2010, Toronto, ON, Canada (poster).

89. Crawford NR, Wharton N, Reyes PM, Hipp JA. In Vivo versus In Vitro Normal Cervical Sagittal Plane Biomechanics. Presented at the 10th Annual Meeting of the Spine Arthoplasty Society, April 2010, New Orleans, LA.

90. Duggal N, Kowalczyk I, Rabin D. In-vivo Kinematic Comparison of Prodisc-C, Prestige-LP and Bryan Cervical Disc. Presented at the 10th Annual Meeting of the Spine Arthoplasty Society, April 2010, New Orleans, LA.

91. Pitzen TR and Drumm J. Detailed radiographic evaluation of cervical spine segment settling characteristics in patients having received an anterior dynamic cervical plate. Presented at the 13th Annual Meeting of the Spine Society of Europe (EuroSpine), October 2010, Vienna, Austria.

92. Suchomel P, Sola S, Stulik J, Meisel HJ, Kroppenstedt, Arregui R. One year follow-up analysis of sagittal segmental alignment after cervical disc arthroplasty. Prospective study of 62 patients. Presented at the 13th Annual Meeting of the Spine Society of Europe (EuroSpine), October 2010, Vienna, Austria.

93. Mayer M, Zenner J, Korn G, Resch H, Auffarth A, Koller H. Evaluierung der Quantitativen Motion Analyse als diagnostisches Tool Okkulter HWS – Verletzungen. Presented at the 5th DWG Conference, December 2010, Bremen, Germany.

2009

94. Park DK, Lin EL, Braaksma B, Phillips FM. Comparison of Index and Adjacent Level Kinematics Following Cervical Disc Replacement versus Fusion: A Radiographic Analysis. Presented at the 9th Annual Meeting of the Spine Arthoplasty Society, April 2009, London, England.

95. Philips FM, Ahrens J, Albert TJ. Predicting Relief of Radiculopathy in Patients Receiving ACDF or TDR: Factors Associated with Response. Presented at the 9th Annual Meeting of the Spine Arthoplasty Society, April 2009, London, England.

96. Patwardhan A, Wharton N, Newman P, Voronov L, Carandang G, Renner S, Havey R. Explanation of Unequal Wear Patterns in the Charité Polyethylene Core: A Quantitative Analysis of Intra-prosthesis Motion Distribution. Presented at the 9th Annual Meeting of the Spine Arthoplasty Society, April 2009, London, England. Also presented the 23rd Annual Meeting of the North American Spine Society, Oct. 2008, Toronto, Ontario, Canada (poster).

97. Guyer RD, Blumenthal SL, Cappucino A. 24-month Follow-up of a Prospective Randomized Comparison of

Two Lumbar Total Disc Replacements. Presented at the 9th Annual Meeting of the Spine Arthoplasty Society, April 2009, London, England and at the 24th Annual Meeting of the North American Spine Society, November 2009, San Francisco, CA (poster)

98. Yue JJ, Garcia R, Morreale. Volumetric Analysis of Foraminal Parameters Following Lumbar Total Disc Replacement: A Radiogrpahic and Clinical Comparison of 3 Biomechanical Types of Lumbar Disc Replacements:A Semi-constrained Device, a Controlled Translation Device (CTD) and an Unconstrained Device. Presented at the 9th Annual Meeting of the Spine Arthoplasty Society, April 2009, London, England and at the 24th Annual Meeting of the North American Spine Society, November 2009, San Francisco, CA (poster)
99. Moumene M, Holy C, Harms J. Center of Rotation Analysis for DISCOVER Artificial Disc – Comparison of Finite Element Analysis Results with Early Clinical Experience. Presented at the 9th Annual Meeting of the Spine Arthoplasty Society, April 2009, London, England.
100. Vilendecic M, Ledic D, Eustacchio S, Varga P, Gorensek M. BARRICAID ARD® (Anular Reconstruction Device) in the Treatment of Lumbar Disc Herniations: A Prospective Study. Presented at the 9th Annual Meeting of the Spine Arthoplasty Society, April 2009, London, England.
101. Dryer RF, Goel VK, Regan JJ, Hartjen CA, DiRisio DJ. ACADIA™ Facet Replacement System Lumbar Kinematics: A Comparison of Finite Element, in vitro and in vivo Investigations. Presented at the 9th Annual Meeting of the Spine Arthoplasty Society, April 2009, London, England.
102. Marzluff JM, Highsmith J, Tomaras C, Morrison T, Volcan I, Goodrich A, Asdourian P, McConnell J. Clinical Motion in the Cervical Spine with the SECURE-C Cervical Artificial Disc. Presented at the 9th Annual Meeting of the Spine Arthoplasty Society, April 2009, London, England.
103. Webb S, Sethi K, Castellvi A, Sachs B, Wingo C, Halperin M, Wiles D, Brown C. Facet Arthroplasty in Patients with Reduced Disc Height – Preliminary Data from an Ongiong U.S. IDE Clinical Trial. Presented at the 9th Annual Meeting of the Spine Arthoplasty Society, April 2009, London, England.
104. Coric D, Krinock M, Phillips F, Yue J, Hess H, Wharton N, Hipp J. Radiographic Analysis of Rotation at Index and Adjacent Levels Following Total Disc Replacement – Clinical Experience from IDE Subjects. Presented at the 9th Annual Meeting of the Spine Arthoplasty Society, April 2009, London, England.
105. Wharton ND, Newman P, Hipp JA. Assessment of Normal Interpedicular Motion in Flexion-extension X-rays of the Lumbar Spine. Presented at the 9th Annual Meeting of the Spine Arthoplasty Society, April 2009, London, England. (special emphasis poster)
106. Ogilvie W, Hipp J, Wharton N, Roth S, Clemow A. Intervertebral Disc Kinematics Following Implantation of an Elastomeric Artificial Lumbar Disc. Presented at the 9th Annual Meeting of the Spine Arthoplasty Society, April 2009, London, England.
107. Dimming T, Lauryssen C, Coric D, Musante D, Liebelt R. Spinal Kinetics M6™-C: Initial Clinical and Radiographic Outcomes for an Advanced Generation Artificial Cervical Disc. Presented at the 9th Annual Meeting of the Spine Arthoplasty Society, April 2009, London, England (poster)
108. Chaudhary N, Bajares G, Oliva A, Kowalczyk I, Duggal N. Kinematic Analysis Following Implantation of the Prestige LPCervical Disc System. Presented at the 9th Annual Meeting of the Spine Arthoplasty Society, April 2009, London, England (poster)
109. Abitbol JJ, Wright NM, Baldwin NG, Youssef JA. Cervicore® vs. Fusion in Radiculopathy Patients: Radiographic Range of Motion at One-year. Presented at the 9th Annual Meeting of the Spine Arthoplasty Society, April 2009, London, England (poster) and at the 24th Annual Meeting of the North American Spine Society, November 2009, San Francisco, CA (poster)
110. Riew KD. Argument for Cervical Arthroplasty. Proceedings of the American Academy of Orthopaedic Surgeons, February 2009, Las Vegas, NV
111. Murrey D, Janssen M, Delamarter R, Goldstein J, Zigler J, Tay B, Darden B. 5-Year Results of the Prospective, Randomized, Multicenter FDA Investigational Device Exemption (IDE) ProDisc-C TDR Clinical Trial. Presented at the 24th Annual Meeting of the North American Spine Society, November 2009, San Francisco, CA.
112. Kowalczyk I, Duggal N, Rabin D. In-Vivo Kinematic Comparison of ProDisc-C, Prestige LP, Bryan Cervical Disc and a Discectomy with Fusion. Presented at the 24th Annual Meeting of the North American Spine Society, November 2009, San Francisco, CA.
113. Tibbs PA, Yue J, Shaffrey M, Coric. Discover Artificial Disc IDE Trial: Preliminary Results in a Multi-Center Randomized Controlled Trial for Treatment of Single-Level Cervical Disc Disease. Presented at the 24th Annual Meeting of the North American Spine Society, November 2009, San Francisco, CA (poster)
114. Anakwenze OA, Auerbach JD, Milby A, Lonner B, Balderston RA. Cervical Disc Arthroplasty versus ACDF: A comparison of sagittal cervical alignment. Presented at the Annual Meeting of the American Academy of

Orthopaedic Surgeons, February 2009, Las Vegas, NV and at the 9th Annual Meeting of the Spine Arthoplasty Society, April 2009, London, England (poster)

115. Pettine KA, Dryer RF, Rodgers WB, Kitchel SH, Youssef JA. NeoDisc Cervical TDR: Correlation between disc height increase and clinical/radiographic success. Presented at the Annual Meeting of the American Academy of Orthopaedic Surgeons, February 2009, Las Vegas, NV (poster)

116. Powell JW, Sasso RC, Anderson PA. Quality of Spinal Motion with Cervical Disc Arthroplasty: Computer-Aided Radiographic Analysis. Presented at the American Academy of Orthopaedic Surgeons, February 2009, Las Vegas, NV (poster) and at the Cervical Spine Research Society meeting, Dec. 2008, Austin, TX.

117. Maxwell JH, Delamarter RB, Sherman JE, Welch WC, Davis R, Cheng B, Wingate JK. Quantitative radiographic analysis of a posterior dynamic stabilization system at 24 months. Presented at the Annual Meeting of the American Academy of Orthopaedic Surgeons, February 2009, Las Vegas, NV (poster)

2008

118. Phillips F. Rebalancing of the Spine after Total Disc Replacement: Contributing Factors and Impact on Sagittal Alignment and Range of Motion. Presented at the Annual Meeting of the Cervical Spine Research Society, Dec. 2008, Austin, TX.

119. Sasso R. Motion Characteristics and Related Outcomes for an L-TDR Device with a Fixed Center of Rotation. Presented at the 23rd Annual Meeting of the North American Spine Society, Oct. 2008, Toronto, Ontario, Canada (special interest poster)

120. Viere RG, Krinock MJ, Hess M, Yue J. Cervical Lordosis with the Discover Artificial Cervical Disc: Postoperative Radiographic Review of 75 Subjects. Presented at the 23rd Annual Meeting of the North American Spine Society, Oct. 2008, Toronto, Ontario, Canada (poster)

121. Guyer RD, Geisler FH, Holt RT, et al. The Impact of Postoperative Disc Height Following Arthroplasty on Long-Term Clinical and Radiographic Outcomes: A Five-Year Follow-Up Study. Presented at the 23rd Annual Meeting of the North American Spine Society, Oct. 2008, Toronto, Ontario, Canada (poster)

122. Majd ME, Holt RT, Guyer RD, et al. Two- and Five-Year Lumbar Index-Level Motion Following Arthroplasty: Impact of Heterotopic Ossification. Presented at the 23rd Annual Meeting of the North American Spine Society, Oct. 2008, Toronto, Ontario, Canada (poster)

123. Marzluff JM, Highsmith J, Tomaras C, et al. Radiographic Outcomes Following Cervical Disc Arthroplasty Compared to Anterior Cervical Discectomy and Fusion in a Prospective Randomized Study. Presented at the 23rd Annual Meeting of the North American Spine Society, Oct. 2008, Toronto, Ontario, Canada (poster)

124. Majd ME, Holt RT, Guyer RD, et al. Two- and Five-year lumbar index-level motion following Arthroplasty: Impact of Heterotopic Ossification. Presented at the 23rd Annual Meeting of the North American Spine Society, Oct. 2008, Toronto, Ontario, Canada (poster)

125. Musante DB, Coric D, Liebelt R, et al. Prospective, Randomized, US Clinical Trial Comparing Kineflex C Cervical Total Disc Replacement to Fusion for Single-Level Disc Degeneration. Presented at the 8th Annual Meeting of the Spine Arthroplasty Society, May 2008, Miami, FL.

126. Welch W, Davis R, Sherman J, et al. A Quantitative Radiographic Analysis of a Posterior Dynamic Stabilization System: Dynamic Parameters and Maintenance of Segmental Disc Height and Lordosis. Presented at the 8th Annual Meeting of the Spine Arthoplasty Society, May 2008, Miami, FL. Also presented at 23rd annual meeting of the North American Spine Society, Oct. 2008, Toronto, Ontario, Canada (poster).

127. Jenis LG, Banco R, Geisler FH, Holt RT, Majd ME, Wharton ND. Prospective, Randomized, Multi-center FDA IDE Study of Charité™ Artificial Disc vs. Lumbar Fusion: Index- and Adjacent-level Range of Motion at 5-year Follow-up. Presented at the 15th International Meeting for Advanced Spine Techniques, July 2008, Hong Kong, China, and at the 8th Annual Meeting of the Spine Arthroplasty Society, May 2008, Miami, FL (poster).

128. Delamarter R, Zigler J, Balderston R, et al. Results of the Prospective, Randomized, Multicenter Food and Drug Administration Investigational Device Exemption Study of the ProDisc-L Total Disc Replacement vs. Circumferential Fusion for the Treatment of 2-Level Degenerative Disc Disease. Presented at the 8th Annual Meeting of the Spine Arthoplasty Society, May 2008, Miami, FL.

129. Peng C, Quirno M, Goldstein J, et al. Effect of Intervertebral Disk Height on Adjacent Level Post-operative Motion Following ProDisc-C Cervical Disc Replacement. Presented at the 8th Annual Meeting of the Spine Arthoplasty Society, May 2008, Miami, FL.

130. Quirno M, Goldstein J, Errico T, et al. Analysis of Segmental Range of Motion after Cervical Total Disc Replacement. Presented at the 8th Annual Meeting of the Spine Arthoplasty Society, May 2008, Miami, FL.

131. Patwardhan A, Tzermiadianos M, Voronov L, et al. Quality and Quantity of Motion of the Cervical Spine after Total Disc Replacement Using a Compressible Six-Degree-of-Freedom Prosthesis. Presented at the Annual Meeting of the Orthopaedic Research Society, Mar. 2008, San Francisco, CA.

2007

132. Tzermiadianos M, Voronov L, Renner S, et al. Effect of Cervical Disc Prosthesis Placement Variability in the Sagittal Plane on the Kinematics of Implanted Segments. Presented at the Annual Meeting of the Cervical

Spine Research Society, Nov. 2007, San Francisco, CA, and at the Annual Meeting of the Spine Arthroplasty Society, May. 2007, Berlin, Germany.

133. Eubanks A, Hipp JA, Reitman CA. Reference Data for Interpreting Interspinous Process Widening in Flexion/Extension X-rays of the Cervical Spine. Presented at the North American Spine Society Meeting, Oct. 2007, Austin, TX. Spine J, 5:38S

134. Polly D, Burkus K, Foley K, et al. Long-term Effects of Anterior Lumbar Interbody Fusion on Adjacent Segment Motion. Presented at the 22nd Annual Meeting of the North American Spine Society, Oct. 2007, Austin, TX.

135. Auerbach JD, Milby AH, Weinberg AD, Balderston RA. Segmental Contribution Towards Total Cervical Range Of Motion: A Comparison Of Cervical Disc Arthroplasty And Fusion. Presented at the 22nd Annual North American Spine Society Meeting, Oct. 2007, Austin, TX.

136. Auerbach JD, Milby AH, Balderston RA. Preoperative Disc Height as a Predictor of Success in Lumbar Disc Replacement or Fusion Surgery. 22nd Annual North American Spine Society Meeting, Oct. 2007 (e-poster).

137. Ben-Galim P, Reitman C, Hipp J, Heggeness M. Whole body and dynamic lumbar instability: Reliability of flexion/extension radiographs in assessing acute damage to the lumbar spine. 22nd Annual North American Spine Society Meeting, Oct. 2007 Spine J, 5:148S-149S

138. Ben-Galim P, Reitman C, Hipp J, Heggeness M. A novel and accurate biomechanical testing method for the study of motion and stability in humans. 22nd Annual North American Spine Society Meeting, Oct. 2007. Spine J, 5:149S

139. Pearson A, Sengupta D, Wharton N, Genuario J, McGough W, Spratt K. Precision of Lumbar Intervertebral Measurements: Does a Computer Assisted Technique Improve Reliability. Presented at the 2007 meeting of the International Society for the Study of the Lumbar Spine (ISSLS), Hong Kong, China (special emphasis poster).

140. Patwardhan A, Tzermiadianos M, Voronov L, Renner S, Caradang G, Havey R. Quality of Motion of the Cervical Spine after Total Disc Replacement (TDR) Using a Novel Compressible Six Degree of Freedom Prosthesis. Presented at the 7th Annual Meeting of the Spine Arthroplasty Society, May 2007, Berlin Germany.

141. Davis R, Maxwell J, Delamarter R, Sherman J, Welch W, Wingate, JK. Dynamic Stabilization: A Preliminary In Situ Quantitative Dynamic Analysis of Flexion Extension Radiographs From the US IDE Trial. Presented at the 7th Annual Meeting of the Spine Arthroplasty Society, May 2007, Berlin, Germany.

142. Cappuccino A, Khoo L, Pimenta L, Diaz R. Prospective Clinical Study of the TOPS Total Posterior Spinal Arthroplasty System: Interim Radiographic Analysis. Presented at the 7th Annual Meeting of the Spine Arthroplasty Society, May 2007, Berlin, Germany.

143. Trautwein F, Lowery G, Wharton N, Hipp J, Chomiak R. Determination of the In Vivo Loading Environment of the CoflexTM Interspinous Stabilization Device. 7th Annual Meeting of the Spine Arthroplasty Society, May 2007, Berlin, Germany (poster).

144. Phillips F. In Vivo Quantitative Radiographic Analysis of the Index and Adjacent Levels Following PCM Cervical Disc Replacment. 7th Annual Meeting of the Spine Arthroplasty Society, May 2007, Berlin, Germany (poster).

145. Welch W, Delamarter R, Maxwell JH, Wingate JK, Davis R, Sherman, J. Maintenance of Disc Height and Lordosis Following Dynamic Stabilization with the Dynesys® Spinal System. American Association of Neurological Surgeons, 2007 (poster).

146. Mehta JS, Hipp J, Paul IB, Shanbhag V, Jones A, Howes J, Davies PR, Ahuja S. Temporal geometric changes in the injured segments following thoraco-lumbar fractures using a quantitative motion analysis software. Presented at the British Society for computer aided orthopedic surgery, 2007. Abstract in JBJS 2008; 90-B:563

2006 147. Gornet M, Mathews H, Burkus J, Rahn K, LeHuec J, Williams A. Maverick™ Total Disc Replacement: A study of device position and patient outcomes at two years. Presented at the Annual Meeting of the North American Spine Society, 2006, and the International Meeting for Advanced Spine Techniques, 2006.

148. Ghiselli G, Jatana S, Wong D, Wharton N. Pseudoarthrosis in the Cervical Spine: What is the Gold Standard? CT Scan vs. Flexion Extension Motion Analysis with IntraOperative Correlation. Presented at the 21st Annual Meeting of the North American Spine Society, Oct. 2006, Seattle, WA. Spine J, 6:60S-61S.

149. Krag M. Early Experience with a New Interbody Fusion Device (OptiMesh®). International Society for the Study of the Lumbar Spine (ISSLS), 33rd Annual Meeting, June 2006, Bergen, Norway.

150. Patwardhan A, Wharton N, Havey R, et al. Location and Mobility of Instantaneous Centers of Rotation in the Lumbar Spine - Implications to Design of Lumbar Disc Prostheses. Presented at the 21st Annual Meeting of the North American Spine Society, Oct. 2006, Seattle, WA. (poster)

151. Duggal N, Bertagnoli R, Pickett G, Wharton N. Kinematic Results after ProDisc-C™ Total Disc Replacement. Presented at the 6th Annual Meeting of the Spine Arthroplasty Society, May 2006, Montreal, Canada.
152. Wharton N, Hipp J, Reitman C. Intervertebral Motion in the Asymptomatic Cervical Spine During Lateral Bending. Presented at the 6th Annual Meeting of the Spine Arthroplasty Society, May 2006, Montreal, Canada.
153. Patwardhan, A et al. Effect of total disc replacement on instantaneous centers of rotation of the lumbar spine. Presented at the 6th Annual Meeting of the Spine Arthroplasty Society, May 2006, Montreal, Canada (poster)
154. Patwardhan A, Wharton N, Havey R, et al. Instantaneous centers of rotation of the intact lumbar spine and total disc replacement. Presented at the Annual Meeting of the International Society for the Study of the Lumbar Spine, 2006 (poster).
155. Rabin D, Duggal N, Bertagnoli R, Wharton N. In-vivo Cervical Kinematics of the ProDisc-C. Presented at the Annual Meeting of the Cervical Spine Research Society, 2006.

2005

156. Patwardhan A, O'Leary P, Nicolakis M, et al. Response of Charité™ Total Disc Replacement under Physiologic Loads: Prosthesis Component Motion Patterns. Presented at the 20th Annual Meeting of the North American Spine Society, 2005, Philadelphia, PA. (Best Paper Award)
157. Sasso R, Rouleau J. Cervical Kinematics in ACDF and Disc-Replaced Subjects. Presented at the 20th Annual Meeting of the North American Spine Society, 2005.
158. Sasso, R. Artificial Disc Versus Fusion for the Treatment of Cervical Radiculopathy: A Prospective, Randomized Study. Presented at the 5th Annual Meeting of the Spine Arthroplasty Society, 2005.
159. Heggeness, MH; Mourning, D; Reitman, CA; Hipp, JA. Limited Initial Rigidity of Plate and Bone Graft Construct Following Anterior Cervical Discectomy and Fusion. Presented at the 2005 Annual Meeting of the Cervical Spine Research Society.

2004

160. Okuma K, Lindsey DP, Fredrick A, Yerby SA. The effect of interspinous process distraction on the intervertebral alignment of lumbar vertebrae. Presented at the 4th Annual Meeting of the Spine Arthroplasty Society, 2004, Vienna, Austria.
161. Pickett G, Duggal, N. Biomechanical Results with an Artificial Cervical Disc. Presented at the International Meeting for Advanced Spinal Techniques, 2004, Bermuda.

2003

162. Reitman C, Ziegler J, Hipp J. Interpreting intervertebral motion in the cervical spine during flexion and extension. Presented at the Cervical Spine Research Society meeting, 2003.
163. Reitman C, Wharton N, Hipp J. The Dependence of Cervical Spine Pseudoarthrosis Rate on Radiographic Motion Criteria. Presented at the Cervical Spine Research Society meeting, 2003.
164. Crowell B, Hipp J, Nguyen L, Heggeness M: Elastic deformation of cervical vertebrae. Presented at the Cervical Spine Research Society meeting, 2003.
165. Spisak SA, Zucherman JF, Hsu KY, Holloway JE, Yerby SA. Influence of the X STOP interspinous spacer on lumbar sagittal alignment in stenosis patients.
166. Sahni I, Reitman CA, Nguyen L, Hipp JA: Immediate effects of cervical spine fusion on intervertebral motion adjacent to the fusion. Baylor College of Medicine, Department of Orthopedic Surgery Spine Fellow Research Project, Presented at the 2003 graduation ceremony, Houston, TX.

2002

167. Reitman CA, Esses SI, Hipp JA: Intervertebral motion adjacent to cervical fusion. A prospective evaluation. Podium presentation at the Cervical Spine Research Society, 2002
168. Reitman CA, Esses SI, Hipp JA: Intervertebral motion at the fusion site following cervical arthrodesis. Podium presentation at the Cervical Spine Research Society, 2002
169. Roberts B, Lindsey RW, Zbigniew G, Hipp JA: Fluoroscopic Evaluation of Suspected Pseudoarthoses: A Useful Clinical Adjunct, Scientific Exhibit Number: SE51. Presented at 69th Annual Meeting of the America Academy of Orthopaedic Surgeons, 2002