

February 2017

## **CURRICULUM VITAE**

**Frank M. Phillips, M.D.**

Rush University Medical Center  
Midwest Orthopaedics  
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### PERSONAL

Date of Birth: August 10, 1960  
Citizenship: United States of America

### EDUCATION

Spine Fellowship, Case Western Reserve University School of Medicine (Henry Bohlman, MD), 1994-1995  
Orthopaedic Residency, The University of Chicago Medical Center, 1989-1994  
Orthopaedic Research Fellowship, The University of Chicago Medical Center, 1988-1989  
Senior House Officer Orthopaedic Surgery, University of Witwatersrand, Johannesburg, South Africa, 1985-1987  
Internship General Surgery/Internal Medicine, University of Witwatersrand, Johannesburg, South Africa, 1984  
Medical School, University of Witwatersrand, Johannesburg, South Africa, MBBCh 1978-1983

### CURRENT POSITION

Director Spine Surgery, Department of Orthopaedic Surgery, Rush University Medical Center  
Professor of Orthopaedic Surgery, Rush University Medical Center  
Co-Director Spine Fellowship, Rush University Medical Center  
Head, Section of Minimally Invasive Spine Surgery, Rush University Medical Center

### PREVIOUS POSITIONS

Medical Director, Spine Center: The University of Chicago  
Spine Fellowship Director, The University of Chicago  
Associate Professor of Surgery, The University of Chicago  
Assistant Professor of Surgery, The University of Chicago

### LICENSURE AND CERTIFICATIONS

Permanent Illinois #036-084396  
Permanent Ohio #66854  
American Board of Orthopaedic Surgery (Certified 1997, Recertified 2007)

### HONORS AND AWARDS

Charles Herndon Residency Research Award of Orthopaedic Research and Education Foundation (1992)  
American Orthopaedic Association - Zimmer Residents Travel Award Winner (1994)

Best Teacher Award, Section of Orthopaedics, The University of Chicago Medical Center (1998)

Outstanding poster Award: North American Spine Society, Annual Meeting, October 2000, New Orleans

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*Intradiscal electrothermal annuloplasty to treat discogenic low back pain: Preliminary results of a multi-center prospective cohort study.*

Outstanding poster Award: North American Spine Society, Annual Meeting, October 2000, New Orleans  
*Early outcomes of the first 1471 consecutive kyphoplasty procedures in the United States for fixation of painful osteopenic vertebral body compression fractures.*

Best Resident Paper: Annual AOA Conference, 2002

*Adenovirus mediated transfer of Sox9 to human degenerative intervertebral disc chondrocytes. (as mentor)*

Best Multispecialty Scientific paper. Society of laparoendoscopic surgeons, 14<sup>th</sup> International Congress, San Diego CA 2005

*L5-S1 Laparoscopic Anterior Interbody Fusion*

Best Research Paper: Spine Arthroplasty Society Annual Meeting, Berlin. 2007

*Initial outcomes following PCM arthroplasty for the treatment of symptomatic cervical spondylosis: Results of a prospective, randomized, multi-center study.*

Best Poster Award: Spine Arthroplasty Society 8<sup>th</sup> Annual Meeting, Miami. May, 2008

*Lower Incidence of Dysphagia with Cervical Arthroplasty compared to ACDF in a Prospective Randomized Clinical Trial.*

Best Paper: North American Spine Society Annual Meeting. Chicago, 2011

*Preclinical study of human allogenic amniotic membrane as a barrier to epidural fibrosis in the early wound of a post laminectomy rat model.*

Best Paper: North American Spine Society Annual Meeting. Chicago, 2011

*Why don't annular defects heal? Does interposed nucleus pulposus prevent healing? An in vivo study.*

Whitecloud Best Paper Award Nominee: International Meeting on Advanced Spine Techniques (IMAST) 20th Annual Meeting. Vancouver, Canada. July 2013

*Phillips FM, Gilder K, Howell KM, Geisler FH, Chaput C, Reah CJ, DeVine JG, McAfee PC. A Prospective, Randomized Clinical Investigation of the PCM Cervical Disc: Five year results from the US IDE study.*

Best Paper; Society for Minimally Invasive Spine Surgery Annual Meeting. Las Vegas November 2013

*Singh K, Nandyala SV, Marquez-Lara A, Fineberg SJ, Oglesby M, Pelton MA, Andersson G, Phillips FM. A perioperative cost analysis comparing single-level minimally invasive and open transforaminal lumbar interbody fusion.*

Selected to *Best Doctors in America* 2003-2015

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Selected Castle Connolly 2003-2015 *Chicago Metro Area Top Doctors*  
Orthopaedics This week: Top 28 Spine Surgeons in the United States (selected by spine surgeon peers)  
20012; 2013

MEMBERSHIPS, APPOINTMENTS

American Academy of Orthopaedic Surgeons  
North American Spine Society  
Orthopaedic Research Society  
International Society for the Study of the Lumbar Spine  
Cervical Spine Research Society  
The Illinois Orthopaedic Society  
Mid-America Orthopaedic Association  
American Orthopaedic Association (AOA) – elected 2002  
International Society for Advanced Spinal Surgery  
Society for Minimally Invasive Spine Surgery  
Adjunct Member, Joint Spine Section, AANS/CNS

*Weiss Memorial Hospital*

Quality Resource Management Committee (1995-2001)  
Director, Orthopaedic Quality Assurance Committee (1995-2001)  
Treasurer, Medical Staff Executive Committee (1999-2001)  
Medical Director Spine Center (2001-2003)

*University Of Chicago*

Institutional Review Board (1997-2000)  
Director Spine Fellowship Program (2000-2003)

*Rush University Medical Center*

Operating Room Committee (2006-2016)  
Conflict of Interest in Research Committee (2008-2010)

*Midwest Orthopaedic Network*

Clinical Integration Committee (2005- 2014)  
Board of Directors (2006 – 2014)

*Spine Technology and Educational Group [501(c)(3)]*

Board of Directors (2007 – present)

*Spine Value Council [501(c)(3)]*

Board of Directors (2009 – present)

Research Project Management Committee, *North American Spine Society* (2000-2003)  
Industry Relations Committee, *International Society for Advanced Spinal Surgery*

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(2006-2009)

Program Committee, Poster Committee Chair, *International Society for Advanced Spinal Surgery Annual Meeting* (2007)

Scientific Program Committee *Cervical Spine Research Society* (2007-2010)

Education Committee, *International Society for Advanced Spinal Surgery* (2007-2009)

President, *Society of Minimally Invasive Spine Surgery (SMISS)* (2007-2008)

Board of Directors, *Society of Minimally Invasive Spine Surgery (SMISS)* (2006-present)

Spine Biologics Research Section Board *North American Spine Society* (2007-2009)

Cervical Spine Research Society: Awards Committee (2013-2016)

Education Committee Chair, *International Society for Advanced Spinal Surgery* (2009-2010)

Overall Program Chair, *International Society for Advanced Spinal Surgery Annual Meeting*, London, 2009

Overall Program Chair, *Cervical Spine Research Society*, Salt Lake City, 2009

Instructional Course Committee Chair, *International Society for Study of Lumbar Spine (ISSLS) 2010*

Federation of Spine Associations (FOSA) Board 2009/2010

Advocacy Committee Chair, *International Society for Advanced Spinal Surgery* (2011-)

Central US Representative: *International Society for Study of Lumbar Spine (ISSLS)* (2013-)

North American Chair, *Society of Minimally Invasive Spine Surgery (SMISS)* (2013-15)

Executive Board, *International Society for Study of Lumbar Spine (ISSLS)* (2013-)

American Board of Orthopaedic Surgery: Recertification Oral Examiner. 2014

Board of Directors, *International Society for Advanced Spinal Surgery (ISASS)* (2015-)

President, *Society of Lateral Access (SOLAS)* (2015-2017)

Program Chair, *Society of Minimally Invasive Spine Surgery Annual Meeting*. Las Vegas, 2016

Senior Editor: *Advances in Osteoporotic Fracture Management*

Editorial Board: *Journal of Spinal Disorders and Techniques*

Reviewer: *Spine, NEJM, Clinical Orthopaedics and Related Research*

Consultant Reviewer: *Journal of the American Academy of Orthopaedic Surgeons*

Deputy Editor: *International Journal of Spine Surgery*

**PEER REVIEWED PUBLICATIONS**

1. Cohen I, Mitchell D, Seider R, Kahn A, Phillips FM. The effects of water deficit on body temperature during rugby. *S Afr Med J*, 60:11-14, 1981
2. Phillips FM, Pottenger LA: Acute septic arthritis in chronic osteonecrosis of the hip. *J Rheumatol*, 15:1713-1716, 1988
3. Phillips FM, Pottenger LA: *In vitro* reconstitution of the cartilage matrix granule network. *Anat. Rec*, 225:26-34, 1989

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4. Phillips FM, Pottenger LA, Hay RV: *In situ* cross-linking of cartilage proteoglycans. *J Orthop Res*, 8:189-198, 1990
5. Pottenger LA, Phillips FM, Draganich LF: The effect of marginal osteophytes on reduction of varus-valgus instability of osteoarthritic knees. *Arthritis and Rheum* 33:853-858, 1990
6. Kahn A, Pottenger LA, Phillips FM, Viola, BA: Evidence for proteoglycan-proteoglycan interactions within cartilage aggregates. *J Orthop Res*, 9:777-787, 1991
7. Phillips FM, Pottenger LA, Finn HA, VanderMolen, J: Cementless total hip arthroplasty in patients with steroid-induced avascular necrosis of the hip. A 62 month follow-up study. *Clin Orthop Rel Res*, 303:147-154, 1994
8. Posever J, Phillips FM, Pottenger LA: Effects of bFGF, TGF- $\beta$ , IGF-I, and insulin on osteoarthritic human articular cartilage explants. *J Orthop Res* 13:832-837, 1995
9. Pokharna HK, Phillips FM: Changes in pyridinoline and pentosidine in human lumbar intervertebral discs with aging. *Arth Rheum* 39:1460, 1996
10. Phillips FM, Carlson G, Emery SE, Bohlman HH: Anterior cervical pseudarthrosis: Natural history and treatment. *Spine* 22:1585-1589, 1997
11. Wetzel FT, Phillips FM, Bernard TN, Aprill CN, LaRocca SH: Extradural sensory rhizotomy in the management of chronic lumbar radiculopathy: A minimum two year follow-up study. *Spine* 22(19): 2283-2292, 1997
12. Pokharna HK, Phillips FM: Collagen crosslinks in human lumbar intervertebral disc aging. *Spine* 23(15): 1654-1658, 1998
13. Wetzel FT, Tansey LP, Phillips FM, Sinclair DM: A critical appraisal of pain associated with iatrogenic adult spinal deformity and treatment by spinal cord stimulation. *Neuromodulation*, 2(1): 15-22, 1999
14. Phillips FM, Phillips CS, Wetzel FT, Gelinac C: Occipito-cervical neutral position: Possible surgical implications. *Spine* 24(8):775-778, 1999.
15. Wetzel FT, Brustein M, Phillips FM, Trott S: Hardware failure in unconstrained lumbar pedicle screw system: A two-year follow-up study. *Spine* 24(11):1138-1143, 1999.
16. Vraney RT, Phillips FM: Peridiscal arterial anatomy of the lumbar spine: An endoscopic perspective. *Spine* 24(21):2183-2187, 1999
17. Wetzel FT, Hassenbusch S, Willis KD, Phillips FM: Failed Back Surgery. *Biomechanics* 6(11):51-62, 1999.
18. Phillips FM: Current surgical management of metastatic spinal disease. *Oncology* 14(7):1029-1030, 2000
19. Wetzel FT, Phillips FM: Management of Metastatic Disease of the Spine. *Orthop. Clin. N. America* 31(4):32-43, 2000
20. Phillips FM, Carlson G, Bohlman HH, Hughes S: The results of surgery for spinal stenosis adjacent to a previous lumbar fusion. *J Spinal Disorder's* 13(5):432-437, 2000.
21. Wetzel FT, Andersson GB, Lee C, Yuan H, Rashbaum R, Pelosa J, Phillips FM. Intradiscal Electrothermal Therapy (IDET) to treat discogenic low back pain: Preliminary results of a multi-center prospective trial. *Pain Med* 1(2):201-202, 2000
22. Wetzel F, McCracken L, Robbins RA, Lahey DM, Carnegie M, Phillips FM: Temporal stability of the MMPI in patients undergoing lumbar fusion: A poor predictor of surgical outcome. *American J Orthopaedic Surgery* 30(6):469-474, 2001

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23. Phillips FM, Paul R, Lieberman I: Kyphoplasty for the treatment of osteoporotic and osteolytic vertebral compression fractures. *Adv Osteopor Fracture Management* 1(1):7-11, 2001
24. Phillips FM, Cunningham B. Inter-transverse lumbar interbody fusion (ILIF). A new technique. *Spine*, 27(2):37-41, 2002
25. Wetzel FT, McNally T, Phillips FM: Lumbar Discography. *Seminars in Spine Surgery*, 13(4):268-274, 2002.
26. Phillips FM, Reuben J, Wetzel FT: Intervertebral disc degeneration adjacent to inter-transverse lumbar spine fusion - An experimental rabbit model. *J Bone Joint Surg*, 84(2):289-294, 2002.
27. Phillips FM, T Wetzel, Lieberman I, M Campbell-Hupp. An *in vivo* comparison of the potential for extra-vertebral cement leak after vertebroplasty and kyphoplasty. *Spine*, 27(19):2173-2177, 2002.
28. Wetzel FT, McNally T, Phillips FM: Intradiscal electrothermal therapy used to manage chronic discogenic low back pain. *Spine*, 27(22):2621-2626, 2002.
29. Phillips FM, Cunningham B: Managing chronic pain of spinal origin after lumbar surgery: The role of decompressive surgery. *Spine*, 27(22):2547-2553, 2002.
30. Phillips FM, Pfeifer BA, Lieberman IH, Kerr EJ 3rd, Choi IS: Minimally invasive treatments of osteoporotic vertebral compression fractures: vertebroplasty and kyphoplasty; *AAOS Instr Course Lect*.52:559-67, 2003.
31. Paul RJ, Haydon R, Chen H, Ishikawa A, Nenadovich N, Jiang W, Zhou L, Breyer B, Feng T, Gupta P, He TC, Phillips FM. Potential use of Sox-9 gene therapy in degenerative disc disease. *Spine*, 15:28(8):755-763, 2003.
32. Sun M, Cheng H, Phillips FM, Peng Y, Kang Q, Haydon R, He TC Bone morphogenic proteins and bone regeneration: From biology to clinical applications. *Adv Osteopor Fracture Management* 2(3):70-78, 2003.
33. Zdeblick TA, Phillips FM: Interbody Cage Devices. *Spine* 28(15):S2-7, 2003
34. Phillips FM. Minimally invasive treatments for osteoporotic vertebral fractures. *Spine* 28(15):S45-53, 2003
35. Phillips FM, Ho E, McNally T, Wetzel FT, Gupta P. Early clinical and radiographic results of kyphoplasty for the treatment of osteopenic vertebral compression fractures. *Spine* 1;28(19):2260-5, 2003
36. Cheng H, Jiang W, Phillips FM, Haydon RC, Peng Y, Zhou L, Luu HH, An N, Breyer B, Vanichakarn P, Szatkowski JP, Park JY, He TC. Osteogenic Activity of the 14 Types of Human Bone Morphogenetic Proteins (BMPs). *J Bone and Joint Surg* 85(8): 1544-1552, 2003
37. Patwardhan A, Caradang G, Ghanayem A, Voronov L, Cunningham B, Phillips FM. Compressive preload improves the stability of the anterior lumbar interbody fusion cage construct. *J Bone Joint Surg* 85(9): 1749-1756, 2003
38. Sun M, Cheng H, Phillips FM, Peng Y, Kang Q, Haydon R, He TC Bone morphogenic proteins and bone regeneration: From biology to clinical applications. *Adv Osteopor Fracture Management* 2(3):70-78, 2003.
39. Vaccaro A, Patel T, McCulloch JA, Truumees E, Fischgrund J, Herkowitz H, Hilibrand A, Phillips FM, Albert T. A pilot safety and efficacy study of OP-1 (rhBMP-7) with iliac crest autograft in posterolateral lumbar fusions for degenerative spondylolisthesis. *Eur Spine J* 12(5):495-500, 2003

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40. Phillips FM. Noninstrumented posterolateral fusion for patients with spinal stenosis and degenerative spondylolisthesis. *Spine*. 29(2): 170-2, 2004.
41. Groen RJ, Du Toit DF, Phillips FM, Hoogland PV, Kuizenga K, Coppes MH, Muller CJ, Grobbelaar M, Mattysen J. Anatomic and pathologic considerations in percutaneous vertebroplasty and kyphoplasty: A reappraisal of the vertebral venous system. *Spine*. 1;29(13):1465-1471, 2004
42. Phillips FM, Cunningham B, Carandang G, Voronov L, Ghanayem A, Havey RM, Patwardhan AG. Effect of supplemental translaminar facet screw fixation on the stability of stand-alone ALIF cages under physiologic compressive loads. *Spine*. 29(16):1731-1736, 2004
43. Yuan H, Brown C, Phillips FM. Osteoporotic Spinal Deformity: A Biomechanical Rationale for the Clinical Consequences and Treatment of Vertebral Body Compression Fractures. *J Spinal Disorders* 17(3):236-242, 2004
44. Phillips FM, Ho E, Cunningham BW. Radiographic criteria for placement of translaminar facet screws. *The Spine Journal* 4(4):465-467, 2004
45. Vaccaro A, Patel T, Fischgrund J, Anderson DG, Truumees E, Herkowitz HN, Phillips FM, Hilibrand A, Albert T, Wetzel T, McCulloch JA. A pilot study evaluating the safety and efficacy of OP-1 putty (rhBMP-7) as a replacement for iliac crest autograft in posterolateral lumbar fusions for degenerative spondylolisthesis. *Spine*. 29(17):1885-1892, 2004
46. Lieberman IH, Phillips FM, Togawa D, Modic M, Masaryk T, Obuchowski N, Slipman CW. Vertebral augmentation and the limits of interpreting complications reported in the food and drug administration manufacturer and user facility device experience database. *J Vasc Interv Radiol*. 15(11):1193-6, 2004
47. Vaccaro AR, Patel T, Fischgrund J, Anderson DG, Truumees E, Herkowitz H, Phillips F, Hilibrand A, Albert TJ. A 2-year follow-up pilot study evaluating the safety and efficacy of OP-1 putty (rhBMP-7) as an adjunct to iliac crest autograft in posterolateral lumbar fusions. *Eur Spine J*. 26, 2005.
48. Gaitanis IN, Voronov LI, Ghanayem AJ, Carandang G, Magovern B, Havey RM, Zindrick MR, Phillips, FM, Hadjipavlou AG, Patwardhan AG. Effect of balloon (bone tamp) inflation on restoring geometric and loading alignment in thoracic vertebral compression fractures. Accepted *Eur Spine J*, 2003.
49. Gaitanis IN, Carandang G, Phillips, FM, Voronov LI, Ghanayem AJ, Magovern B, Havey RM, Zindrick MR, Hadjipavlou AG, Patwardhan AG. Restoring geometric and loading alignment of thoracic spine with vertebral compression fracture. Effects of balloon tamp inflation and spinal extension. *Spine J*. 5(1):45-54; 2005.
50. Seldomridge JA, Phillips FM. Minimally invasive spine surgery. *Am J Orthop*. 36(5);224-232, 2005.
51. Phillips FM, Garfin S. Cervical disc replacement. *Spine*. 30(17S):S27-33, 2005
52. Phillips FM, Bolt PM, He TC, Haydon R. Gene therapy for spine fusion. *Spine J*. 5(6):S250-8, 2005.
53. Singh K, Strom J, Manning D, Campbell-Hupp M, Wetzel FT, Gupta P, Phillips FM. A prospective, randomized, double-blind study evaluating the efficacy of postoperative continuous local anesthetic infusion at the iliac crest bone graft site after spinal arthrodesis. *Spine*. 30(22):2477-83, 2005.

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54. Zhang Y, Li Z, He T-C, Thonar E, An HS, Pietryla, D, Phillips, FM. Transduced bovine articular chondrocytes affect the metabolism of cocultured nucleus pulposus cells in vitro: implications for chondrocyte transplantation into the intervertebral disc. *Spine* 30(23):2601-7, 2005.55.
55. Singh K, Heller JG, Samartzis D, Price S, An HS, Yoon ST, Rhee J, Ledlie J, Phillips FM. Open cement augmentation combined with lumbar decompression for the operative management of thoracolumbar stenosis secondary to osteoporotic burst fractures. *J Spinal Disord Tech.* 18(5):413-419, 2005
56. Singh K, Samartzis D, Vaccaro AR, Nassr A, Andersson GB, Yoon ST, Phillips FM, Goldberg EJ, An HS. Congenital lumbar spinal stenosis: a prospective, control-matched, cohort radiographic analysis. *Spine J.* 5(6):615-22, 2005.
57. Vaccaro A, Anderson DG, Patel T, Fischgrund J, Truumees E, Herkowitz HN, Phillips FM, Hilibrand A, Albert T, Wetzel T, McCulloch JA. Comparison of OP-1 Putty (rhBMP-7) to iliac crest autograft for posterolateral lumbar arthrodesis: a minimum 2-year follow-up pilot study. *Spine.* 15;30(24):2709-16, 2005.
58. Hughes SS, Pringle T, Phillips FM, Emery S. Settling of Fibula Strut Grafts Following Multilevel Anterior Cervical Corpectomy: A Radiographic Evaluation. *Spine.* 31(17):1911-1915, 2006.
59. Phillips FM, Sulpizio BS, Mohr K, Turner S, MacLeay J, Toth CA, Wheeler D. *In vivo* BMP-7 enhancement of osteoporotic vertebral bodies in an ovine model. *Spine J.* 6(5):500-6. 2006
60. Manson NA, Phillips FM. Minimally invasive techniques for the treatment of osteoporotic vertebral fractures. *J Bone Joint Surg. Am.* 88(8):1862-72. 2006
61. Frantzides CT, Zeni TM, Phillips FM, Mathur S, Zografakis JG, Moore RM, Laguna LE. L5-S1 Laparoscopic anterior interbody fusion. Submitted *J Soc Laparoendoscopic Surg.* 10(4):488-92. 2006.
62. Zhang Y, An HS, Thonar E, Pietryla, D, Chubinskaya S, He T-C, Phillips, FM. Comparative Effects of Adenovirus Expressing Bone Morphogenetic Proteins and Sox9 on Extracellular Matrix Metabolism of Bovine Nucleus Pulposus Cells. *Spine* 31(19):2173-2179, 2006.
63. Phillips FM, Voronov, L, Gaitanis, I, Carandang, G, Havey, R, Patwardhan, A G. Biomechanics of posterior dynamic stabilizing device (DIAM) after facetectomy and discectomy. *Spine J.* 6(6):714-22, 2006
64. DuBois CM, Bolt PM, Todd AG Gupta P, Wetzel FT, Phillips FM. Static versus dynamic plating for multilevel anterior cervical discectomy and fusion. *Spine J.* 7:188-193, 2007
65. Vaccaro AR, Whang PG, Patel T, Phillips FM, Anderson DG, Albert TJ, Hilibrand AS, Brower RS, Kurd MF, Appannagari A, Patel M, Fischgrund JS. The safety and efficacy of OP-1 (rhBMP-7) as a replacement for iliac crest autograft for posterolateral lumbar arthrodesis: minimum 4-year follow-up of a pilot study. *Spine J.* 8(3):457-65; 2008
66. Zhang Y, Anderson DG, Phillips FM, Thonar EJ, He TC, Pietryla D, An HS. Comparative effects of Bone Morphogenetic Proteins and Sox9 overexpression on matrix accumulation by bovine annulus fibrosus cells - Implications for annular repair. *Spine* 32(23): 2515-2520, 2007
67. Singh K, Campbell-Hupp M, Kuo E, Phillips FM. A prospective, randomized, double-blind study study of the efficacy of postoperative continuous local anesthetic infusion at the iliac crest bone graft site after posteriorspinal arthrodesis: A minimum of four-year follow-up. *Spine.* 1;32(25):2790-6; 2007



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68. Tzermiadianos MN, Renner SM, Phillips FM, Hadjipavlou AG, Zindrick MR, Havey RM, Voronov M, Patwardhan AG. Altered disc pressure profile after an osteoporotic vertebral fracture is a risk factor for adjacent vertebral body fracture. *Eur Spine J.* 2008
69. Phillips FM, Tzermiadianos MN, Voronov LI, Havey RM, Caradang G, Renner SM, Rossler DM, Ochoa J, Patwardhan AG. Effect of the Total Facet Arthroplasty System after complete laminectomy-facetectomy on the biomechanics of implanted and adjacent segments. *Spine J.* 9(1):96-102, 2009.
70. Zhang Y, Phillips FM, Thonar EJ, Oegema T, An HS, Roman-Blas JA, He TC, Anderson DG,. Cell therapy using articular chondrocytes overexpressing BMP-7 or BMP-10 in a rabbit disc organ culture model. *Spine* 33(8):831-838; 2008
71. Kwon BK, Mann C, Sohn HM, Hilibrand AS, Phillips FM, Wang JC, Fehlings MG. Hypothermia for spinal cord injury. *Spine J.* 2008
72. Li X, An HS, Ellman M, Phillips FM, Thonar EJ, Park D, Udayakumar RK, Im HJ. The catabolic and anti-anabolic action of Basic Fibroblast Growth Factor on the intervertebral disc. *Arthritis Res Ther.* 10(2), 2008
73. Rihn JA, Gates C, Glassman SD, Phillips FM, Schwender JD, Albert TJ. The use of bone morphogenetic protein in lumbar spine surgery. *J Bone Joint Surg Am.* 90(9):2014-25, 2008
74. Li X, Phillips FM, An HS, Ellman M, Thonar E, Wu W, Park D, Im HJ. The action of resveratrol, a Phytoestrogen found in grapes, on the intervertebral disc. *Spine* 13(24): 2586-2595, 2008
75. Phillips FM, Allen RT, Regan JJ, Albert TA, Capuccino 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* 15;34(6):556-65, 2009.
76. Zhang Y, Markova D, Im HJ, Hu W, Thonar EJ, He TC, An HS, Phillips FM, Anderson DG. Primary bovine intervertebral disc cells transduced with adenovirus over-expressing 12 BMPs and Sox9 maintain appropriate phenotype. *Am J Phys Med Rehabil.* 88(6):455-63, 2009.
77. Rihn JA, Berven S, Phillips FM, Currier BL, et al. Defining value in spine care. *Am J Med Qual.* 24(6):4-14, 2009
78. Allen RT, Rihn JA, Glassman SD, Currier B, Albert TJ, Phillips FM. An evidence-based approach to spine care. *Am J Med Qual.* 24(6):15-24, 2009
79. Smith HE, Rihn JA, Brodke DS, Guyer R, Coric D, Lonner B, Shelokov AP, Currier BL, Riley L, Phillips FM, Albert TA. Spine Care: Evaluation of the efficacy and cost of emerging technology. *Am J Med Qual.* 24(6):25-32, 2009
80. Phillips FM, Tzermiadianos MN, Voronov LI, Havey RM, Carandang G, Dooris A, Patwardhan AG. Effect of two-level total disc replacement on cervical spine kinematics. *Spine* 15:34(22):794-9, 2009.
81. McAfee PC, Cappuccino A, Cunningham BW, DeVine JG, Phillips FM, Regan JJ, Albert TJ, Ahrens JE. Lower incidence of dysphagia with cervical arthroplasty compared with ACDF in a prospective randomized clinical trial. *J Spinal Disord Tech* 23:1-8, 2010
82. Park DK, Lee MJ, Lin EL, Singh K, An HS, Phillips FM. The Relationship of Intrapsoas Nerves During a Transpsoas Approach to the Lumbar Spine: Anatomic Study. *J Spinal Disord Tech.* 23(4):223-8, 2010.

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83. Pelinkovic D, Udayakumar RK, Phillips FM. Balloon-assisted fracture reduction in high energy burst fractures. *Seminars in Spine Surgery* 22(2): 67-72, 2010
84. Park DK, Lin EL, Phillips FM. Index and adjacent level kinematics after cervical disc replacement and anterior fusion; In vivo radiographic analysis. *Spine (Phila Pa 1976)*. 20;36(9):721-30, 2011.
85. Singh K, Dumonski M, Stanley T, Ponnappan R, Phillips FM. Repeat use of rhBMP-2 for second level lumbar arthodesis. *Spine* 36(3):192-196, 2011
86. Lee M, Dumonski M, Phillips F, Voronov L, Renner S, Carandang G, Havey R, Patwardhan A. disc replacement adjacent to cervical fusion: A biomechanical comparison of hybrid construct vs. two-level fusion. *Spine (Phila Pa 1976)*. 1;36(23):1932-9, 2011
87. McAfee PC, Phillips FM, Andersson G, Buvenenadran A, Kim CW, Laurysen C, Isaacs RE, Youssef JA, Brodke DS, Cappuccino A, Akbarnia BA, Mundis GM, Smith WD, Uribe JS, Garfin S, Allen RT, Rodgers WB, Pimenta L, Taylor W. Minimally invasive spine surgery. *Spine* 15;35: S271-3, 2010
88. Mundis GM, Akbarnia BA, Phillips FM. Adult deformity correction through minimally invasive lateral approach techniques. *Spine* 15;35:S312-21, 2010
89. Isaacs RE, Hyde J, Goodrich JA, Rodgers WB, Phillips FM. A prospective, nonrandomized, multicenter evaluation of extreme lateral interbody fusion for the treatment of adult degenerative scoliosis: perioperative outcomes and complications. *Spine* 15;35:S322-30, 2010
90. Kim CW, Siemionow K, Anderson DG, Phillips FM. The current state of minimally invasive spine surgery. *J Bone Joint Surg Am* 93(6):582-96, 2011
91. Phillips FM, Garfin SR. Minimally invasive sacroiliac joint fusion. *Orthopedics* 34(8):600-1, 2011
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173. Patwardhan A, Tsitsopoulos PP Potluri T, Hannon S, Zelenakova J, Carandang G, Phillips FM et al. Does PLL resection affect stability of cervical disc arthroplasty? Cervical Spine Research Society, 40<sup>th</sup> Annual Meeting, Chicago, IL. December 2012
174. Phillips FM, Gilder K, Howell KM, Geisler FH, Chaput C, Reah CJ, DeVine JG, McAfee PC. A Prospective, Randomized Clinical Investigation of the PCM Cervical Disc: Five year results from the US IDE study. International Meeting on Advanced Spine Techniques (IMAST) 20th Annual Meeting. Vancouver, Canada. July 2013
175. McAfee PM, Gilder K, Howell KM, Phillips FM, Geisler FH, Chaput C, DeVine JG, Long term evolution of dysphagia with PCM cervical disc compared to ACDF in a prospective, randomized clinical trial: Five year results from the US IDE study. International Meeting on Advanced Spine Techniques (IMAST) 20th Annual Meeting. Vancouver, Canada. July 2013
176. Singh K, Nandyala SV, Marquez-Lara A, Fineberg SJ, Oglesby M, Pelton MA, Andersson G, Phillips FM. A perioperative cost analysis comparing single-level minimally invasive and open transforaminal lumbar interbody fusion. Society for Minimally Invasive Spine Surgery (SMISS) Annual Meeting. Las Vegas November 2013.
177. Phillips FM, Gilder K, Howell KM, Geisler FH, Chaput C, Reah CJ, DeVine JG, McAfee PC. A Prospective, Randomized Clinical Investigation of the PCM Cervical Disc: Five year results from the US IDE study. North American Spine Society Annual Meeting. New Orleans, 2013
178. Phillips FM, Khajavi K, Kanter AS, Peterson MD. Comparison of clinical outcomes between TLIF and XLIF for the treatment of degenerative spondylolisthesis at L4-5 : A prospective study. ISASS Annual Meeting. San Diego 2015.

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179. Phillips FM, Khajavi K, Kanter AS, Peterson MD. Comparison of outcomes for lumbar fusion in the treatment of spondylolisthesis and degenerative disc disease. A prospective study. ISASS Annual Meeting. San Diego 2015.
180. McCormack B, Phillips FM, Tyrakowski M, Siemionow K. Indirect posterior cervical decompression and fusion using expandable facet joint implant for single level radiculopathy – Results in 53 patients at 2 years. ISASS Annual Meeting. San Diego 2015.
181. Khan S, Phillips FM. Healthcare resource utilization in patients undergoing anterior cervical decompression and fusion for radiculopathy compared to total joint arthroplasty for osteoarthritis – the value perspective. ISASS Annual Meeting. San Diego 2015.
182. Phillips FM, McAfee, Geisler FH. Seven year survivorship analysis : Late term complications and revisions following PCM cervical disc arthroplasty or anterior cervical discectomy and fusion. ISASS Annual Meeting. San Diego 2015.
183. Khan S, Phillips FM. Patterns of healthcare resource utilization prior to anterior cervical decompression and fusion in patients with radiculopathy : A time to shift the clinical equipoise. ISASS Annual Meeting. San Diego 2015.
184. Reiser E, Byrd S, Isaacs RE, Idler C, Radcliff K, Phillips FM. C-arm positioning is a significant source of unnecessary radiation exposure. ISASS Annual Meeting. San Diego 2015.
185. Phillips FM, Howell K, Geisler F, Reah, CJ, McAfee PC. Seven-year results from the PCM cervical disc US FDA IDE Trial. North American Spine Society Annual Meeting. Chicago, 2015
186. Phillips FM, Khajavi K, Kanter AS, Peterson MD. A prospective multicenter comparison of clinical outcomes between TLIF and LLIF in treatment of degenerative spondylolisthesis at L4-5 at 2-year follow up. Society for Minimally Invasive Spine Surgery (SMISS) Annual Meeting. Las Vegas November 2015
187. Phillips FM, Khajavi K, Kanter AS, Peterson MD. A prospective multicenter comparison of outcomes for lumbar fusion in the treatment of degenerative spondylolisthesis and degenerative disc disease at 2-year follow up. Society for Minimally Invasive Spine Surgery (SMISS) Annual Meeting. Las Vegas November 2015
188. Bohl D, Massel D, Mayo B, Louie P, Phillips FM, Buvanandran A, Singh K. Multimodal vs patient controlled analgesia following transforaminal lumbar interbody fusion. Society for Minimally Invasive Spine Surgery (SMISS) Annual Meeting. Las Vegas October 2016
189. Virk S, Phillips FM, Khan, SN. Resource utilization for anterior compared to posterior surgical approaches for cervical spondylotic myelopathy. Cervical Spine Research Society, 44<sup>th</sup> Annual Meeting, Toronto, 2016
190. Shifflet GD, Kaikous J, Goczalk MG, Basques BA, Louie P, Phillips FM. Anterior cervical discectomy and fusion with stands-alone PEEK cages with integrated screws compared to allograft and plate construct. Cervical Spine Research Society, 44<sup>th</sup> Annual Meeting, Toronto, 2016
191. Virk S, Phillips FM, Khan, SN. Reimbursement and charges related to a 90-day episode of care for a one- or two-level anterior cervical discectomy and fusion. Cervical Spine Research Society, 44<sup>th</sup> Annual Meeting, Toronto, 2016

NATIONAL/INTERNATIONAL PRESENTATIONS — POSTERS

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1. Posever J, Phillips FM, Pottenger LA. Effects of insulin, IGF-I, TGF $\beta$  and bFGF on osteoarthritic human articular cartilage explants. 40th Annual Meeting, Orthopaedic Research Society. February 1994, New Orleans
2. Phillips FM, Posever J, Pottenger LA. Effects of insulin, IGF-I, TGF $\beta$  and bFGF on osteoarthritic human articular cartilage explants. 107th Annual Meeting, American Orthopaedic Association (**AOA-Zimmer Resident Award winner**). June 1994, Sun Valley
3. Wetzel FT, Phillips FM. Verification of pedicle screw placement with epidural and intraosseus visualization. North American Spine Society, Annual Meeting. October 1996, Vancouver
4. Pokharna H, Phillips FM. Pentosidine and pyridinoline crosslinks in human lumbar intervertebral disc aging and degeneration. American College of Rheumatology, 60th National Scientific Meeting. October 1996, Orlando
5. Phillips FM, Phillips CS, Wetzel FT, Gelinas C. Occipito-cervical neutral position - possible surgical implications. Cervical Spine Research Society, 24th Annual Meeting. November 1996, West Palm Beach
6. Wetzel FT, Phillips FM, Tansey LP, North RB. The cost of spinal cord stimulation at six months. Midwest Pain Society, 21st Annual Scientific Meeting. April 1997, Chicago
7. Wetzel FT, Phillips FM, Tansey LP. Preliminary experience with open implantation of a dual octapolar lead system for spinal cord stimulation. Midwest Pain Society, 21st Annual Scientific Meeting. April 1997, Chicago
8. Phillips FM, Wetzel FT, Pokharna H. Alterations in collagen cross-linking in symptomatic degenerative disc disease. 10th Combined meeting of Orthopaedic Associations. February 1998, Auckland, New Zealand
9. Wetzel FT, Brustein M, Phillips FM, Trott S. Hardware failure in unconstrained lumbar pedicle screw system: A two-year follow-up study. North American Spine Society, 13th Annual Meeting. October 1998, San Francisco
10. Wetzel FT, McCracken L, Robbins RA, Lahey DA, Carnegie M, Phillips FM. Temporal stability of surgical MMPIs in fusion patients: A poor prognosticator. North American Spine Society, 13th Annual Meeting. October 1998, San Francisco
11. Phillips FM, Tansey LP, Wetzel FT, Gonzales CM. Inpatient rehabilitation after lumbar spinal surgery: Is it effective? International Society for the Study of the Lumbar Spine. June 1999, Hawaii
12. Phillips FM, Reuben J. An experimental model of intervertebral disc degeneration adjacent to inter-transverse lumbar spine fusion. 46th Annual Meeting, Orthopaedic Research Society. March 2000, Orlando
13. Wetzel FT, Andersson GB, Lee C, Yuan H, Rashbaum R, Peloza S, Phillips FM. Intradiscal electrothermal annuloplasty to treat discogenic low back pain: Preliminary results of a multi center prospective trial. International Society for the Study of the Lumbar Spine. April 2000, Adelaide, Australia.
14. Dudeney S, Lieberman IH, Phillips FM. Early experience with kyphoplasty in the treatment of painful osteoporotic vertebral compression fractures. World Congress on Osteoporosis 2000. Chicago, June 2000
15. Garfin SR, Lieberman IH, Reilly MA, Lane JM, Phillips FM. Early outcomes of the first 1471 consecutive kyphoplasty procedures in the United States for fixation of painful osteopenic

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- vertebral body compression fractures. North American Spine Society, 15th Annual Meeting. October 2000, New Orleans.
16. Wetzel FT, Andersson GB, Lee C, Yuan H, Rashbaum R, Pelosa S, Phillips FM, An H. Intradiscal electrothermal annuloplasty to treat discogenic low back pain: Preliminary results of a multi-center prospective cohort study. North American Spine Society, 15th Annual Meeting. October 2000, New Orleans
  17. Wetzel FT, Andersson GB, Lee C, Yuan H, Rashbaum R, Pelosa S, Phillips FM, An H. Intradiscal electrothermal annuloplasty to treat discogenic low back pain: Preliminary results of a multi-center prospective cohort study. 68th Annual AAOS Conference. March 2001, San Francisco
  18. Patwardhan A, Caradang G, Ghanayem A, Voronov L, Phillips FM Effect of compressive preload on the response of ALIF cage construct and adjacent segments. Annual Meeting, Orthopaedic Research Society. February 2001, San Francisco
  19. Phillips FM, McNally T. Early clinical and radiographic results of kyphoplasty for the treatment of osteopenic vertebral compression fractures. International Society for the Study of the Lumbar Spine. June 2001, Edinburgh, Scotland
  20. A Patwardhan, Caradang G, Ghanayem A, Voronov L, Phillips FM. Effect of compressive preload on the response of ALIF cage construct and adjacent segments. International Society for the Study of the Lumbar Spine. June 2001, Edinburgh, Scotland
  21. Lane J, Girardi F, Khan S, Parvatanemi H, Reiley M, Liebermann I, Garfin S, Phillips FM, Yuan H. Preliminary outcomes of the first 311 consecutive kyphoplasties for the fixation of painful osteoporotic vertebral compression fractures. International Society for the Study of the Lumbar Spine. June 2001, Edinburgh, Scotland
  22. Patel T, Vaccaro A, Fischgrund J, Herkowitz H, Hilibrand A, Albert T, Phillips FM, Truumees E. A pilot safety and efficacy study of OP-1 (rhBMP-7) as an adjunct to posterolateral lumbar fusion. International Society for the Study of the Lumbar Spine. June 2001, Edinburgh, Scotland
  23. Cunningham B, Phillips FM. Radiographic criteria for proper placement of translamina facet screws. International Society for the Study of the Lumbar Spine. June 2001, Edinburgh, Scotland
  24. Garfin S, Yuan H, Lieberman I, Phillips FM. Early outcomes with kyphoplasty treatment for painful osteoporotic compression fractures. International Society for the Study of the Lumbar Spine. June 2001, Edinburgh, Scotland
  25. Phillips FM, Cunningham B, Patwardhan A et al.. Translamina facet screws improve stability of threaded anterior lumbar interbody cage constructs. International Society for the Study of the Lumbar Spine. June 2001, Edinburgh, Scotland
  26. Lane J, Liebermann I, Garfin S, Khan S, Phillips FM, Reiley M, Sachs B, Yuan H, Girardi F, Parvatanemi H,. Preliminary outcomes of the first 311 consecutive kyphoplasties for the fixation of painful osteoporotic vertebral compression fractures. American Orthopaedic Association, Annual Meeting, June 2001, Palm Beach.
  27. Phillips FM, Falahee M, Wetzel T, Rabinowitz R, Gupta P. Lumbar interbody fusion comparing allograft bone dowels to threaded titanium cages – a prospective, randomized, multi-center study. EuroSpine, Gotenburg, Sweden, Sept. 2001
  28. Phillips FM, McNally T, Liebermann I. Does kyphoplasty reduce potential for extra-vertebral and intra-vascular polymethylmethacrylate leakage when compared to vertebroplasty. EuroSpine, Gotenburg, Sweden, Sept. 2001

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29. Phillips FM, Cunningham B, Patwardhan A et al.. Translaminar facet screws improve stability of threaded anterior lumbar interbody cage constructs. North American Spine Society, 16th Annual Meeting. 2001, Seattle.
30. Lee C, Wetzel FT, Andersson GB, Pelozo J, Rashbaum R, Yuan H, Phillips FM, An H. Two-year post treatment evaluation of pain levels and location of pain after IDET to treat discogenic low back pain. North American Spine Society, 16th Annual Meeting. 2001, Seattle.
31. A Patwardhan, Havey R, Gavin T, Phillips FM. An experimental model of adult-onset slip progression in isthmic spondylolisthesis. 69th Annual AAOS Conference. February 2001, Dallas
32. He TC, Haydon R, Paul R, Jiang W, Cheng H, Feng T, Phillips, F, Gupta P, Breyer B. Differential effects of human BMPs on osteoblastic differentiation. 48<sup>th</sup> Annual Orthopaedic Research Society Meeting, Feb. 2001, Dallas
33. Phillips FM, Ho E, Campbell-Hupp M, Kerr E, T, Wetzel F, Gupta P. Balloon kyphoplasty for the treatment of painful spinal deformity resulting from osteoporotic vertebral compression fractures. North American Spine Society, 17th Annual Meeting. 2002, Montreal
34. Phillips FM, Kerr E, Campbell-Hupp M. Kyphoplasty combined with percutaneous osteotomy for the treatment of kyphosis associated with non-acute osteoporotic vertebral fractures. ISSLS Annual Meeting. Vancouver, 2003
35. Nenadovich N, Cheng H, Haydon R, He TC, Phillips FM. Sox9 gene therapy for the treatment of intervertebral disc degeneration. AOA, 116<sup>th</sup> Annual Meeting, 2003, Charleston.
36. Phillips FM, Cheng H, Jiang W, Breyer B, Haydon R, , He TC. The Osteogenic Activity of BMPs: Implications in Bone Regeneration and Spine Fusion. AOA, 116<sup>th</sup> Annual Meeting, 2003, Charleston
37. Phillips FM, Kerr E, Wetzel Ft, Gupta P. Initial experience with percutaneously inserted pedicle screw-rod system following anterior lumbar arthrodesis. 10<sup>th</sup> International Meeting on Advanced Spine Techniques, May 2002, Rome, Italy
38. Phillips FM, Kerr E, Wetzel FT Gupta P. Initial experience with percutaneously inserted pedicle screw-rod system following anterior lumbar arthrodesis. World Spine II, Chicago 2003
39. DuToit DF, Phillips FM, Groen RJM, Hoogland PVJN, Grobbelaar M, Mattysen J, Muller CJF. Anatomical relevance of vertebral venous system (VVS) to cement augmentation of osteoporotic vertebral compression fractures. 33rd Anatomy Society of South Africa Conference, April 2003 Golden Gate, South Africa
40. Patel T, Vaccaro A, Truumees E, Fischgrund J, Herkowitz H, Albert T, Hillibrand A, Phillips FM, Wetzel T. Two-year follow-up on patients in a pilot safety and efficacy study of OP-1 in posterolateral fusion as a replacement for iliac crest autograft. Scoliosis Research Society Annual Meeting, Quebec City 2003
41. Phillips FM, Pierce A, Sulpizio BS, Mohr K, Turner S, Wheeler D. Osteoporotic vertebral body enhancement with OP-1 Treatment. Scoliosis Research Society Annual Meeting, Quebec City 2003
42. Phillips FM, Voronov, L, Gaitanis, I, Carandang, G, Havey, R, Patwardhan, A G. Biomechanics of posterior dynamic stabilizing device (DIAM) after facetectomy and discectomy. International Society for the Study of the Lumbar Spine. Porto, Portugal, 2004
43. Zang Y, Li Z, Im HJ, He TC, An HS, Song S, Thonar EJ, Andersson GBJ, Phillips FM. Stimulation of proteoglycan synthesis by nucleus pulposus cells co-cultured with articular

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- chondrocytes transduced with Adviruses expressing BMPs. 5th Combined Meeting of the Orthopaedic Research Societies of the Canada, U.S.A., Japan and Europe. Banff, Canada 2004.
44. Zang Y, Phillips FM, Song S, Li Z, He TC, Thonar EJ, Andersson GBJ, An HS. BMPs-7 and -13 have different effects on proteoglycan accumulation by nucleus pulposus and annulus fibrosus. 5th Combined Meeting of the Orthopaedic Research Societies of the Canada, U.S.A., Japan and Europe. Banff, Canada 2004.
  45. DuBois C, Bolt P, Todd A, Gupta P, Wetzel FT, Phillips FM. Static vs dynamic plating of multilevel anterior cervical discectomy and fusion does it matter? Cervical Spine Research Society. 2004 Boston
  46. Singh K, Manning DW, Samartzis D, Campbell Hupp M, Wetzel FT, Phillips FM. A Prospective, Randomized, Double Blind Study Of Local Anesthetic Infusion At The ICBG Site. 72nd Annual AAOS Conference. 2005, Washington DC
  47. Zhang, Y., Phillips, FM., Im, H-J., Song; S., Li, Z., He, T-C., Thonar, EJ-MA., Andersson GBJ., and An, HS. Bone Morphogenetic Proteins-7 and -13 have Different Effects on Proteoglycan Accumulation by Nucleus Pulposus and Annulus Fibrosus Cells. Orthopedic Research Society 51<sup>st</sup> Annual Meeting, 2005, Washington D.C.
  48. Zhang, Y., An, HS., Phillips, FM., Thonar, E.J-M.A. Biological Treatment of Degenerative Disc Diseases: Gene Therapy Approaches. Poster presentation. 2005 Annual Meeting of the American Academy of Physical Medicine and Rehabilitation (AAPM&R), Philadelphia
  49. Zhang, Y., An, HS., He, T-C., Thonar, E.J-MA., Phillips, FM. Effects of Adenovirus Expressing Twelve Different Bone Morphogenetic Proteins on Proteoglycan Metabolism of the Intervertebral Disc. Poster presentation. *Annual Meeting of the American Academy of Physical Medicine and Rehabilitation (AAPM&R)*, Philadelphia
  50. K Singh, D Samartzis, G Andersson, T Yoon, A Nassr, F Phillips, E Goldberg, H An Congenital lumbar spinal stenosis: A prospective, controlled, matched cohort radiographic analyses. International Society for the Study of the Lumbar Spine. 2005, New York
  51. Y Zhang, Z Li, H An, H-J Im, T-C He, E Thonar, F Phillips. Effects of adenovirus expressing twelve different bone morphogenetic proteins on proteoglycan metabolism of the intervertebral disc. Society for the Study of the Lumbar Spine. 2005, New York
  52. Y Zhang, F Phillips, Z Li, T-C He, E Thonar, H An. Bone morphogenetic proteins-7 and -13 have different effects on proteoglycan accumulation by nucleus pulposus and annulus fibrosus cells. Society for the Study of the Lumbar Spine. 2005, New York
  53. Singh K, Strom J, Samartzis D, Manning D, Hupp M, Wetzel FT, Gupta P, Phillips FM. A prospective, randomized, double blind study evaluating the efficacy of post-operative continuous local anesthetic infusion at the iliac crest bone graft site after spinal arthrodesis. North American Spine Society Annual Meeting. 2005. Philadelphia
  54. Diaz R, Phillips, FM, Pimenta L. Minimally invasive (XLIF) fusion in the treatment of symptomatic degenerative lumbar scoliosis. North American Spine Society Annual Meeting. 2005. Philadelphia
  55. Pimenta L, Phillips F, Diaz R, Vigna F, Bellera F, Da Silva Martins M. XLIF 90 degrees, minimally invasive surgical technique for the treatment of lumbar degenerative scoliosis in



**FRANK M. PHILLIPS, M.D.**

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- adults. Clinical and radiographic results in a 15-month follow up study. *World Spine III*, Rio de Janeiro, Brazil August 2005.
56. Phillips FM, Voronov LI, Tzermiadianos M, Havey RV, Carandang G, Rosler DM, Ochoa J, Patwardhan AG. Kinematics of otal facet arthroplasty after complete laminectomy-foraminotomy. North American Spine Society Annual Meeting. Seattle, 2006
  57. Kim HH, Phillips FM, An HS, Im HJ. The action of bFGF in intervertebral disc chondrocytes. 53rd Annual Meeting Orthopaedic Research Society. February 2006, San Diego
  58. Ponnappan R, Zhang Y, Phillips FM. Transplantation of BMP-transduced chondrocytes to reverse intervertebral disc degeneration in rabbits. International Society for the Study of the Lumbar Spine Annual Meeting. Hong Kong, 2007.
  59. Phillips FM, Regan JJ, Cappuccino A, DeVine JG, McAfee PC. Comparison of clinical outcomes following PCM arthroplasty in patients with and without previous adjacent level ACDF surgery. Spine Arthroplasty Society Annual Meeting. Berlin. 2007
  60. Phillips FM. In vivo quantitative radiographic analysis of index and adjacent levels following PCM cervical disc replacement. Spine Arthroplasty Society Annual Meeting. Berlin. 2007
  61. Regan JJ, Phillips FM, Cappuccino A, DeVine JG, McAfee PC. Cervical arthroplasty for the treatment of symptomatic cervical spondylosis: Initial outcomes from a prospective, randomized, multi-center study. North American Spine Society Annual Meeting. Austin, 2007.
  62. Phillips FM, Regan JJ, Cappuccino A, DeVine JG, McAfee PC. A comparison of clinical outcomes in cervical arthroplasty patients with and without previous adjacent level ACDF surgery. North American Spine Society Annual Meeting. Austin, 2007.
  63. Lee M, Dumonski M, Phillips F, Voronov L, Renner S, Carandang G, Havey R, Patwardhan A. Disc Replacement Adjacent to Previous Cervical Fusion: A Biomechanical Comparison of Hybrid Construct vs. Two-Level Fusion. CSRS Annual Meeting, San Francisco, 2007.
  64. Phillips FM, Regan JJ, Cappuccino A, DeVine JG, McAfee PC. A prospective, randomized, multi-center study of cervical disc replacement: Comparison of training, randomized and ACDF outcomes Cervical Spine Research Society, 35<sup>th</sup> Annual Meeting, San Francisco, CA November 2007
  65. Phillips FM, Lin E, Reagan J. Correlation of in vivo radiographic motion analysis and clinical outcomes in cervical TDR. Cervical Spine Research Society, 35<sup>th</sup> Annual Meeting, San Francisco, CA November 2007
  66. Singh K, Phillips FM, Kuo E, Campbell M, Samartzis D. A prospective, randomized, double blind study of the efficacy of post-operative continuous local anaesthetic infusion at the iliac crest bone graft site after posterior spinal fusion: Four-year follow-up. Cervical Spine Research Society, 35<sup>th</sup> Annual Meeting, San Francisco, CA November 2007
  67. Phillips FM, Lin E. Comparison of index and adjacent level kinematics following cervical disc replacement versus fusion: In vivo radiographic analysis. Cervical Spine Research Society, 35<sup>th</sup> Annual Meeting, San Francisco, CA November 2007
  68. Lee M, Dumonski M, Phillips F, Voronov L, Renner S, Carandang G, Havey R, Patwardhan A. Disc Replacement adjacent to previous cervical fusion: A Biomechanical Comparison of Hybrid Construct vs. Two-Level Fusion. Orthopaedic Research Society, San Francisco, March 2008.
  69. Phillips FM, Gordon C, Sengupta D, Gimbel J. Subsidence resistance evaluation of posterior implanted TDR. Spine Arthroplasty Society 8<sup>th</sup> Annual Meeting, Miami. May, 2008

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70. PC McAfee, A Cappuccino, JG DeVine, FM. Phillips, MD, JJ. Regan, BW Cunningham, FH. Geisler, J Ahrens. Lower Incidence of Dysphagia with Cervical Arthroplasty compared to ACDF in a Prospective Randomized Clinical Trial. Spine Arthroplasty Society 8<sup>th</sup> Annual Meeting, Miami. May, 2008
71. Dumonski M, Stanley T, Singh K, Phillips FM. Repeat arthrodesis with rhBMP-2 at an adjacent spinal level; An assessment of efficacy and immunologic response. International Society for the Study of the Lumbar Spine Annual Meeting. Geneva, Switzerland, May 2008.
72. Phillips FM, Coric D, Hess H, Yue J, Wharton ND, Hipp JA. Rebalancing of the spine after total disc replacement. Cervical Spine Research Society, 36<sup>th</sup> Annual Meeting, Austin, TX. December 2008
73. Rodgers WB, Tohmeh A, Hyde J, Phillips FM. A prospective, multicenter, nonrandomized evaluation of XLIF in the treatment of adult scoliosis. North American Spine Society Annual Meeting. San Francisco, 2009
74. Rodgers WB, Tohmeh A, Hyde J, Phillips FM. A prospective, multicenter, nonrandomized evaluation of XLIF in the treatment of adult scoliosis: Mid-term radiographic outcomes. North American Spine Society Annual Meeting. San Francisco, 2009
75. Hartjen C, Voronov L, Dimitriadis T, McIntosh B, Havey RM, Carandang G, Renner SM, Phillips FM, Patwardhan A. The effects of lumbar facet arthroplasty with the Arcadia facet replacement system on spinal kinematics. North American Spine Society Annual Meeting. San Francisco, 2009
76. Phillips FM, Voronov L, Dimitriadis T, Hartjen C, McIntosh B, Havey RM, Carandang G, Renner SM, Patwardhan A. Different grades of posterior element decompression alter intact lumbar kinematics. North American Spine Society Annual Meeting. San Francisco, 2009
77. Phillips GM. Minimally invasive treatment of adult scoliosis with XLIF. International Meeting on Advanced Spine Techniques (IMAST) 19th Annual Meeting. Istanbul, Turkey. July 2012
78. Smith WD, Phillips FM, Tohmeh AG, Rogers WB. Adult scoliosis treated by XLIF: Clinical results of a 24 month multi-center, prospective study. International Meeting on Advanced Spine Techniques (IMAST) 19th Annual Meeting. Istanbul, Turkey. July 2012
79. Singh K, Phillips FM, Pelton MA. A peri-operative cost and charge analysis following minimally-invasive vs. Open transforaminal lumbar interbody fusion. International Meeting on Advanced Spine Techniques (IMAST) 19th Annual Meeting. Istanbul, Turkey. July 2012
80. Phillips FM, Slosar PJ, Youssef JA, Andersson GB, Papatheofanis F. Clinical review of lumbar spine fusion for chronic low back pain due to dégénérative disc disease. International Meeting on Advanced Spine Techniques (IMAST) 19th Annual Meeting. Istanbul, Turkey. July 2012
81. Singh K, Phillips FM, Pelton MA. A comparison of open vs. MIS TLIF in a worker's compensation patient population. International Meeting on Advanced Spine Techniques (IMAST) 19th Annual Meeting. Istanbul, Turkey. July 2012
82. Badlani N, Pelton M, Foran JR, Singh K, Phillips FM, Allen RT. Patient perceptions of physician reimbursement for spine surgery. International Meeting on Advanced Spine Techniques (IMAST) 19th Annual Meeting. Istanbul, Turkey. July 2012
83. Phillips FM, Pelton M, Singh K. Epidemiologic trends in interspinous process, pedicle based dynamic stabilization and facet replacement devices between 2007 and 2009. Society for Minimally Invasive Spine Surgery (SMISS) Annual Meeting. Miami, FL September 2012.

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84. Phillips FM. Minimally invasive treatment of adult scoliosis with XLIF. A prospective, multicenter study. Society for Minimally Invasive Spine Surgery Annual Meeting. Miami, FL September 2012.
85. Phillips FM, Slosar PJ, Youssef JA, Andersson GB, Papatheofanis F. Clinical review of lumbar spine fusion for chronic low back pain due to dégénérative disc disease. North American Spine Society Annual Meeting. Dallas, 2012
86. Phillips FM, Geisler FH, Chaput C, Reah CJ, Gilder K, Howell KM, DeVine JG, McAfee PC. A Prospective, Randomized Clinical Investigation of the Porous Coated Motion (PCM) Artificial Cervical Disc: Radiographic Outcomes. North American Spine Society Annual Meeting. Dallas, 2012
87. Howell KM, Phillips FM, Geisler FH, Chaput C, Reah CJ, Gilder K, DeVine JG, McAfee PC. A Prospective, Randomized Clinical Investigation of the Porous Coated Motion (PCM) Artificial Cervical Disc: Two tear results comparing outcomes of compensated and non-compensated patients. North American Spine Society Annual Meeting. Dallas, 2012
88. Havey R, Potluri T, Goodsitt J, Hannon S, Voronov L, McIntosh B, Zindrick M, Phillips FM Tsitsopoulos PP, Patwardhan A. Does disc arthroplasty alter cervical facet engagement? A combinatorial approach using experimental data and a 3-D-CT model. Cervical Spine Research Society, 40<sup>th</sup> Annual Meeting, Chicago, IL. December 2012
89. Park KU, Hellman MD, Mikhail CM, Phillips FM. Return to golf after lumbar fusion. ISASS Annual Meeting. San Diego 2015.
90. Park AJ, Ahn J, Buvanendran A, Leblang S, Kurd MF, Massel DH, Singh K, Phillips FM. Multimodal versus intravenous patient controlled analgesia for minimally invasive TLIF : A prospective, randomized study. North American Spine Society Annual Meeting. Chicago, 2015

**INVITED LECTURES**

1. Faculty Member, *Advanced Spine Course*  
American Academy of Orthopaedic Surgery  
Rosemont, IL November 1995
2. “Approach to cervical spine disorders “  
Univ. of Chicago Primary Care Orthopaedics Course - a review of basic and current concepts  
Chicago IL 1996; 1997; 1998; 1999; 2000; 2002
3. “Radiographic interpretation in the lumbar spine”  
Grand Rounds, Schwab Rehabilitation Center  
Chicago, IL February 1996
4. “Cervical spondylosis - Degenerative Cascade”  
North American Spine Society Instructional Course Syllabus, 1998
5. “Approach to metastatic disease of the spine”  
Grand Rounds, LaGrange Hospital  
Chicago, IL March 1998

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6. Moderator, Lumbar-interbody fusion study-group (Sofamor Danek)  
Chicago, IL March 1998
7. Faculty member, *Contemporary Issues in Advanced Spinal Surgery*  
American Academy of Orthopaedic Surgery  
Rosemont, IL November 1998
8. Moderator, *Management of the Failed Back Surgery Syndrome*  
Instructional Course  
American Academy of Orthopaedic Surgery - Annual Meeting  
Anaheim February 1999
9. "Surgery in the Failed Back Surgery Syndrome"  
Instructional Course: *American Academy of Orthopaedic Surgery*- Annual Meeting  
Anaheim February 1999
10. Anterior lumbar inter-body fusion. Patient selection, post-operative managements and clinical results.  
*Current techniques in lumbo-sacral fixation (CME Course)*  
Memphis June 1999
11. Post-surgical infections.  
*Current techniques in lumbo-sacral fixation - minimizing complications in spine surgery course (CME Course)*  
Memphis June 1999
12. Program co-chairman, *Annual Chicago Spine Meeting*, July 1999
13. Faculty member, *Practical Strategies in Spine Surgery: Current Applications and Techniques*  
American Academy of Orthopaedic Surgery  
Rosemont, IL August 1999
14. Course Chairman, *Annual Combined Spine Fellow Course*  
Miami. November 18-20, 1999
15. "Management of multi-level cervical spondylosis"  
*Annual Combined Spine Fellow Course*  
Miami November 18-20, 1999
16. Moderator, Management of the Failed Back Surgery Syndrome  
Instructional Course, *American Academy of Orthopaedic Surgery* - Annual Meeting  
New Orleans, March 2000

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17. Instructional Course. *American Academy of Orthopaedic Surgery- Annual Meeting*  
“Surgery in the Failed Back Surgery Syndrome”  
New Orleans, March 2000
18. Course Chairman, *State of the Art in Spinal Fusion (CME Course)*  
Whistler, British Columbia. February 2000
19. “Indications for anterior-posterior cervical surgery”  
*State of the Art in Spinal Fusion (CME Course)*  
Whistler, British Columbia February 2000
20. Treatment of osteoporotic spine fractures”  
*State of the Art in Spinal Fusion (CME Course)*  
Whistler, British Columbia February 2000
21. Program co-chairman, *Annual Chicago Spine Meeting*, July 2000
22. “Treatment of degenerative scoliosis”  
*Spinal Surgeon International Symposium (CME Course)*  
Napa, CA September 2000
23. "Kyphoplasty surgical technique"  
Symposium: *Advances in the treatment of osteoporotic vertebral compression fracture*  
North American Spine Society, 15th Annual Meeting  
October 2000, New Orleans
24. Faculty member, *Current techniques in lumbo-sacral fixation (CME Course)*  
Memphis November 2000
25. Faculty member, *Practical Strategies in Spinal Surgery*  
American Academy of Orthopaedic Surgery  
Rosemont, IL November 2000
26. Course Chairman, *Annual Combined Spine Fellow Course*  
Naples. December, 2000
27. The role of supplemental posterior fixation for anterior interbody fusion"  
*Annual Combined Spine Fellow Course*  
Naples. December, 2000
28. *Controversies and Challenges in Spine Surgery (CME Course)*  
“Repeat surgery after failed lumbar surgery”

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- “Anterior-posterior cervical reconstruction - Indications”  
“Kyphoplasty to treat osteoporotic vertebral compression fractures”  
“The role of supplemental posterior fixation for anterior interbody fusion”  
Naples. December 2000
29. Faculty member: *Ski with the Spine Annual Meeting (CME Course)*  
"Management of subaxial cervical spine trauma"  
Whistler, British Columbia January 2001
30. Course Director, Management of the Failed Back Surgery Syndrome  
Instructional Course. *American Academy of Orthopaedic Surgery - Annual Meeting*  
San Francisco, March 2001
31. “Surgery after failed decompressive lumbar surgery”  
Instructional Course. *American Academy of Orthopaedic Surgery- Annual Meeting*  
San Francisco, March 2001
32. “Minimally invasive surgical treatments for osteoporotic vertebral compression fractures”  
*Osteoporosis: An update for clinicians. (CME Course)*  
Chicago, March 20001
33. "Osteoporotic compression fractures". *Management of Spinal Pathologies Course (CME Course)*  
Key Largo, May 2001
34. Course Chairman, *Innovations, Challenges and Controversies in Spine Surgery (CME Course)*  
Jackson Hole, Wyoming, July 2001.
35. Invited Guest Lecturer: *EuroSpine GICD (Annual Meeting of European Spine Society)*  
“Minimally invasive surgery for osteoporotic spine fractures”  
Gothenburg, Sweden, September 2001
36. Faculty member, *Advanced Techniques and Current Concepts in Spine Surgery*  
American Academy of Orthopaedic Surgery  
Rosemont, IL November 2001
37. Faculty member, *Current Techniques in Lumbosacral Fixation (CME Course)*  
Phoenix, AZ, November 2001
38. “Minimally invasive spine surgery”  
Symposium: The Osteoporotic Spine.  
American Academy of Orthopaedic Surgery- Annual Meeting. Dallas, 2002
39. *Adenovirus mediated transfer of genes to human degenerative disc chondrocytes.*

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- Specialty Day Presentation: *American Academy of Orthopaedic Surgery- Annual Meeting.*  
Dallas, 2002
40. *Revision of Failed Interbody Cages.*  
Faculty Member: *Minimally Invasive Techniques in Spine Surgery*  
American Academy of Orthopaedic Surgery . St Louis, April 2002
  41. *Options for Osteopenic Vertebral Compression Fractures.*  
13<sup>th</sup> Symposium: Current Management on Spinal Disorders. The Spine Study Group  
West Palm Beach, FL, April 2002.
  42. *Novel Allograft Fusion Options*  
9<sup>th</sup> International Meeting on Advanced Spine Techniques.  
Montreux, Switzerland, May 2002
  43. *Occipito-cervical fixation*  
6th Annual Advanced Techniques in Cervical Spine Decompression & Stabilization  
St Louis, June 2002
  44. *Results of Vertebroplasty and Kyphoplasty.*  
SICOT Meeting: Symposium: Spine Surgery for Osteoporosis  
San Diego, August 2002
  45. *Kirkaldy- Willis revisited*  
*Surgery for neck pain, radiculopathy, and myelopathy*  
*Kyphoplasty for the treatment of vertebral compression fractures*  
Spine Care in the Elderly Course Surgery  
American Academy of Orthopaedic Surgery  
Chicago, October 2002
  46. Course Chairman  
Occipito-cervical Fusion  
*Minimally-invasive Fusion Techniques*  
Spine Surgery and Practice (CME Course), Snowbird, Utah March 2003
  47. Faculty Member: *Minimally Invasive Techniques in Spine Surgery*  
*Revision of Failed Interbody Cages*  
*Kyphoplasty Techniques*  
American Academy of Orthopaedic Surgery , St Louis, April 2003
  48. Invited speaker - plenary session: *Canadian Orthopaedic Society*  
Surgical treatment of osteoporotic spine fractures  
Toronto, 2003

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49. World Spine 2<sup>nd</sup> Congress, Chicago, 2003  
Symposium Director  
*Contemporary vertebral augmentation procedures for the treatment of vertebral fractures.*  
Symposium faculty; “*Fracture and SCI - Future treatment* “
50. Invited Speaker, American College of Rheumatology, 3<sup>rd</sup> Annual State-of-the-Art Clinical Symposium, 2003
51. *The role of neurophysiology in placement of percutaneous pedicular instrumentation.* 10<sup>th</sup> International Meeting on Advanced Spine Techniques, Rome, Italy, May 2002
52. Symposium Chair, *Minimally Invasive Surgical Treatments of Spinal Pathologies : A Rational Approach.* North American Spine Society Annual Meeting. San Diego, 2003
53. *Minimal access posterior instrumented and interbody arthrodesis.* North American Spine Society Annual Meeting Symposium. San Diego, 2003
54. *Expanded indications for kyphoplasty.* 2<sup>nd</sup> Annual Emerging Technologies in Spine Surgery Conference. Washington, September 2003
55. *Clinical Experience with OP-1.* 2<sup>nd</sup> Annual Emerging Technologies in Spine Surgery Conference. Washington, September 2003
56. American Academy of Orthopaedic Surgery  
Chicago, October 2002  
*Kirkaldy- Willis revisited*  
*Surgery for neck pain, radiculopathy, and myelopathy*  
*Kyphoplasty for the treatment of vertebral compression fractures*
57. Faculty member, *Advanced Techniques and Current Concepts in Spine Surgery,*  
Lecture: *Ankylosing Spondylitis*  
AAOS, Rosemont, IL November 2003
58. Invited Speaker, *Clinical use of bone cements in vertebral fractures.*  
ASTM Workshop. Tampa, FL, November 2003
59. Faculty member: *16th Annual Contemporary update on Disorders of the Spine Meeting (CME Course)* "Management of osteoporotic spine fractures"  
Whistler, British Columbia. January 2004
60. Faculty member: *Annual Current Concepts in Spinal Disorders*  
“Which Interbody Devices”



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- “Vertebral Augmentation and Polymer Technology”  
La Quinta CA February 2004
61. Faculty Member : *Spine Education Summit*  
“Disc Degeneration : Biologic Strategies” Vail, Colorado February 2004
62. Symposium Faculty, *Innovative Intervention for the Thoracic and Lumbar Spine.*  
American Academy of Orthopaedic Surgery, Annual Meeting, San Francisco, 2004
63. Treatment of osteoporotic vertebral fracture  
Primed Symposium (Sponsored: Harvard Systems), Fort Lauderdale April 2004
64. Faculty, 15<sup>th</sup> Symposium: Current Management on Spinal Disorders. The Spine Study Group  
West Palm Beach, FL, April 2002
63. Symposium Chair: *Minimally invasive posterior fixation techniques.*  
*DIAM Biomechanics.*  
11<sup>th</sup> International Meeting on Advanced Spine Techniques, Bermuda, July 2004
65. Course Chairman, Advanced Spinal Technique Workshop (CME Course)  
*Translaminar facet screw fixation*  
*Bone Morphogenic proteins in spinal surgery*  
Chicago, IL July 2004
66. *Faculty, Lecturer: C1-2 fusion techniques*  
10th Annual Advanced Techniques in Cervical Spine Decompression & Stabilization  
St Louis, July 2004
67. Course Director, *Innovative Technologies in Spine*  
Los Cabos, Mexico, 2004.
68. Lectures: *DIAM Clinical Experience; Percutaneous spinal fixation techniques*  
*Occipito-Cervical Injuries.* 6<sup>th</sup> Annual Chicago Trauma Symposium (CME Course)  
Chicago, IL, August 2004
69. *Minimally invasive posterior interbody fusion*  
3rd Annual Emerging Technologies in Spine Surgery Conference. Washington, September 2004
70. New Perspectives in the Aging Spine, American Academy of Orthopaedic Surgery  
San Diego, November 2004  
*Kirkaldy- Willis revisited*  
*Surgery for neck pain and radiculopathy,*  
*Kyphoplasty for the treatment of vertebral compression fractures*

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*Biologics in Spine Surgery*

71. Symposium Faculty, *Spine Surgery for Osteoporotic and Elderly Patients*  
American Academy of Orthopaedic Surgery, Annual Meeting, Washington DC, 2005
72. Faculty member: *17th Annual Contemporary update on Disorders of the Spine Meeting (CME Course)*. "Adult Kyphosis" Whistler, British Columbia. 2005
73. Faculty Member. Cervical Spine Surgery Course. North American Spine Society  
*C1-2 Instrumentation*  
Chicago 2005
74. *John McCulloch Memorial Guest Lecturer*, Denver Spine Winter Conference  
*Minimally-invasive lumbar fusion*  
Denver Feb 2005
75. Faculty member: *Fourth Annual Current Concepts in Spinal Disorders(CME Course)*  
"Minimally-invasive posterior fixation - Update";  
"Alternative materials for vertebral enhancement" Lake Las Vegas, February 2005
76. Invited Guest Lecture: *Current state of the art in biologics for disc repair.*  
18th Annual IITS Meeting. 2005 San Diego, California
77. Symposium Chair: *Fundamentals of Minimally Disruptive Fixation.*  
12<sup>th</sup> International Meeting on Advanced Spine Techniques, Banff, July 2005
78. Symposium Chair: *Balloon Kyphoplasty*  
12<sup>th</sup> International Meeting on Advanced Spine Techniques, Banff, July 2005
79. *Course Director*, 2<sup>nd</sup> Annual meeting: *Innovative Technologies in Spine*  
"Kineflex Lumbar Total Disc Replacement"  
"Total Facet Arthroplasty"  
Los Cabos, Mexico, July 2005
80. Kyphoplasty technique. Symposium: *The spectrum of vertebral augmentation for osteoporotic and osteolytic compression fractures.*  
World Spine III, Rio de Janeiro, Brazil August 2005
81. Facet joint arthroplasty. Symposium: *Posterior lumbar motion preservation devices.*  
World Spine III, Rio de Janeiro, Brazil August 2005.
82. Symposium Chair: *Biologics in Spinal Surgery*  
North American Spine Society Annual Meeting. 2005. Philadelphia

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83. Symposium Lecture: *Cellular strategies for disc repair*  
North American Spine Society Annual Meeting. 2005. Philadelphia
84. Faculty: Review and Update for Practicing Orthopaedic Surgeons.  
*Surgical Treatment of the Lumbar Spine.*  
*Cervical Disorders*  
American Association of Orthopaedic Surgeons. Boston 2005
85. Update on vertebral augmentation for osteoporotic spine fractures  
*Invited Lecturer: Arthritis Foundation: Chicago Chapter*  
January 2006
86. Emerging Technologies Spine Education Summit (CME Course)  
*OP-1 for fusion*  
*Biologics of intervertebral disc repair*  
*Dynamic posterior stabilization*  
Telluride, Colorado, January 2006
87. Fifth Annual Symposium on Current Concepts in Spinal Disorders. (CME Course)  
*DIAM*  
*Total facet arthroplasty*  
*Kineflex lumbar disc replacement*  
Las Vegas, February 2006
88. American Academy of Orthopaedic Surgeons. Annual Meeting.  
*Symposium:*  
*Biologics in Lumbar Spine Fusion*  
*Spine Surgery for Osteoporotic and Elderly Patients*  
Chicago 2006
89. Faculty, 17<sup>th</sup> Symposium: Current Management on Spinal Disorders. The Spine Study Group  
*PCM Cervical disc replacement*  
West Palm Beach, FL, April 2002
90. Biomaterials and Baby Boomers; Preclinical testing. US Food and Drug Administration.  
*Clinician perspective of cutting edge spinal technologies*  
Rockville, MD May 2006
91. Course Chairman, New Technologies in the Surgical Management of Cervical Spine Pathologies.  
(CME Course)  
Chicago, IL August 2006

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92. *Course Director, 3<sup>rd</sup> Annual meeting: Innovative Technologies in Spine*  
“XLIF minimally invasive fusion”  
“Discus nucleus replacement”  
Los Cabos, Mexico, June 2006
93. *Occipito-Cervical Injuries. 8<sup>th</sup> Annual Chicago Trauma Symposium (CME Course)*  
Chicago, IL, July 2006
94. *Course Chairman: New Technologies in the Surgical Management of Cervical Spine Pathologies. Chicago, IL. September 2006 (CME Course)*
95. *Course Co- Chairman: Complications in Spine Operations.*  
“Complications of total disc replacement”  
Chicago, IL. September 2006 (*CME Course*)
96. *Symposium Lecture: Cervical Disc Arthroplasty*  
North American Spine Society Annual Meeting. Seattle, 2006.
97. *Invited Guest Lecturer. American Association of Neuromuscular and Electrodiagnostic Medicine Annual Meeting*  
“Minimally invasive spine surgery” Washington DC, October 2006
98. *Faculty: Minimally Invasive Surgery of the Spine 2006 (CME Course)*  
San Diego. November 2006
99. *Course Director: Modern Technology in Spine Surgery. AAOS Annual Course (CME).*  
*Minimally Invasive Lumbar Fusion*  
*Occipito-cervical Fixation*  
Rosemont, IL. November 2006
100. *Visiting Professor: William Beaumont Hospital, Royal Oaks, MI*  
Emerging Spinal technologies; A Perfect Storm. November 2006
101. *Faculty: Cervical Spine Research Society, 11<sup>th</sup> Instructional Course*  
Palm Beach, FL November 2006
102. *Faculty: Emerging Technologies Spine Education Summit (CME Course)*  
*Emerging Spinal Technologies*  
Telluride, Colorado, February 2007
103. *American Academy of Orthopaedic Surgeons. Annual Meeting.*  
*Instructional Course: Biologics in Lumbar Spine Fusion*  
San Diego, February 2007

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104. Faculty: Current Concepts in Emerging Technologies in Spine (*CME Course*)  
*Dynamic cervical fixation*  
*Cervical Debate*  
Vail, Colorado, February 2007
105. Sixth Annual Symposium on Current Concepts in Spinal Disorders. (*CME Course*)  
*Does fusion predispose to adjacent segment degeneration?*  
*Nucleus Replacement*  
Las Vegas, March 2007
106. Extreme Lateral Approaches. *Minimally Invasive Spinal Surgery Pre-Course (CME Course)*  
Spine Arthroplasty Society Annual Meeting, Berlin. 2007
107. *Course Director*, 4th Annual meeting: *Innovative Technologies in Spine*  
Los Cabos, Mexico, June 2007
108. Faculty, *Minimally Invasive Surgical Solutions Symposium*  
IMAST Annual Meeting, Bahamas. 2007
109. Keynote Speaker; 18<sup>th</sup> Annual Colorado Spine Symposium  
*New Spinal technologies*  
*Update on Cervical Disc Replacement*  
Denver, September 2007
110. Faculty: Stem cells for fusion and disc degeneration. *Biologics for the treatment of spinal disorders Symposium*. North American Spine Society Annual Meeting. Austin, 2007.
111. *Course Director*: Contemporary Techniques in Spine Surgery. AAOS Annual Course (CME). *Minimally Invasive Lateral Approaches* Rosemont, IL. November 2007
112. Invited faculty Cervical Spine Research Society  
Cervical Spondylosis – Role for foraminotomy  
35<sup>th</sup> Annual Meeting, San Francisco, CA November 2007
113. 7th Annual Symposium on Current Concepts in Spinal Disorders. (*CME Course*)  
*Minimally invasive spinal surgery – Fad or Reality?*  
*PCM Cervical disc replacement*  
Las Vegas, February 2008.
114. Faculty: Current Concepts in Emerging Technologies in Spine (*CME Course*)  
*Design considerations and Biomechanics of Lumbar Disc Replacement*  
*Cervical TDR; Now and in Five years*

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- Novel technologies: Who will pay for them?*  
Vail, Colorado, February 2008
115. Instructional Course Lecture: *BMP for spinal fusion: Clinical results.*  
American Academy of Orthopaedic Surgery, Annual Meeting, San Francisco, 2008
116. Specialty Day: Faculty: Debate: *Cervical foraminotomy*  
American Academy of Orthopaedic Surgery, Annual Meeting, San Francisco, 2008
117. Invited Faculty: American Association of Neurologic Surgeons: *Minimally Invasive Spine Instructional Course.* Chicago, April 2008
118. Course Director, *Minimally Invasive Spinal Surgery.* North American Spine Society. Burr-Ridge, IL June 2008.
119. *Course Director, 5th Annual meeting: Innovative Technologies in Spine*  
Los Cabos, Mexico, June 2008
120. Faculty: Contemporary Techniques in Spine Surgery. AAOS Annual Course (CME).  
*Minimally Invasive Lateral Approaches* Rosemont, IL. September, 2008.
121. Faculty: Biologics and Clinical Applications. *Lumbar interbody fusion.*  
North American Spine Society Annual Meeting. Toronto, 2008.
122. Symposium: Update on Biologics and Basic Research  
*Biomechanics of TDR. Review of the current evidence.*  
North American Spine Society Annual Meeting. Toronto, 2008.
123. *Faculty: Society of Minimally Invasive Spine Surgery*  
Annual Meeting Las Vegas, 2008
124. 8th Annual Symposium on Current Concepts in Spinal Disorders. (CME Course)  
*Minimally invasive spinal surgery*  
*PCM Cervical disc replacement*  
Las Vegas, January 2009.
125. Faculty: Emerging Technologies Spine Education Summit (CME Course)  
*Fate of the facets after TDR*  
Steamboat Springs, Colorado, February 2009
126. Instructional Course Lecture: *Minimally-Invasive Spine Surgery: Interbody Fusion.*  
American Academy of Orthopaedic Surgery, Annual Meeting, Las Vegas, 2009

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127. Preservation of Motion in the Spine. Annual meeting (*CME Course*)  
*Disc Replacement adjacent to fusion*  
*Posterior disc replacement*  
*Complications of disc replacement*  
Ducks Key, Florida. April 2009
128. Cervical Disc Replacement Symposium  
*What will the future look like?*  
Spine Arthroplasty Society 9<sup>th</sup> Annual Meeting, London, UK. May, 2008.
129. Faculty, 20<sup>th</sup> Symposium: Pearls and Best practices to enhance your Practice. The Spine Study Group (*CME Course*)  
*Cervical disc replacement update*  
West Palm Beach, FL, May, 2009.
130. Invited Guest Lecturer. SINCOL (Brazilian Spine Society) Annual Meeting  
*Posterior TDR,*  
*Update on cervical TDR*  
*Update on clinical use of BMPs*  
Rio de Janeiro, Brazil, 2009
131. *Course Director*, 6th Annual meeting: *Innovative Technologies in Spine*  
Scottsdale, Arizona, June 2009
132. *Faculty*: Society of Minimally Invasive Spine Surgery, Annual Meeting  
Las Vegas, 2009  
*Defining value in spine care.*
133. *Faculty*: Contemporary Techniques in Spine Surgery. AAOS Annual Course (*CME*).  
*ACDF vs TDR*  
*Spine surgery in the elderly*  
Rosemont, IL. November, 2009.
134. Symposium: Defining value in cervical spine care.  
*Value assessment of new technologies.*  
Cervical Spine Research Society, 37<sup>th</sup> Annual Meeting, Salt Lake City 2009
135. *Faculty*: CSRS 14<sup>th</sup> Instructional Course.  
*The future of cervical TDR*  
Salt Lake City 2009
136. 8th Annual Symposium on Current Concepts in Spinal Disorders. (*CME Course*)  
*Complications of minimally invasive spine surgery.*

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- Las Vegas, February 2010.
137. Instructional Course Faculty. Lecture: *Minimally-Invasive Spine Surgery: Lateral Interbody Fusion*.  
American Academy of Orthopaedic Surgery, Annual Meeting, New Orleans, 2010
  138. Specialty Day: Faculty: *Future of cervical TDR*  
American Academy of Orthopaedic Surgery, Annual Meeting, New Orleans, 2010
  139. Co-Chair, International Society for Study of Lumbar Spine (ISSLS) *Instructional Course*  
*Defining value in spine care*  
*Minimally invasive lumbar fusion*  
*New concepts on biomechanics of motion preservation*  
*Wine is salutary for the spine*  
Buenos Aires, Argentina, March 2010
  140. Invited Keynote Speaker, 11<sup>th</sup> Annual South African Spine Society Congress  
*Use of BMPs in spinal surgery*  
*Defining value in spine care*  
*New concepts on biomechanics of motion preservation*  
*Update on cervical disc replacement*  
*Vertebral augmentation: Is there a role post-RCT?*  
Somerset West, South Africa, May 2010
  141. Invited Faculty, 3rd Annual International Dubai Spine Masters: Minimally Invasive Course (NASS and SMISS)  
*Minimally invasive lumbar decompression*  
*Minimally invasive lateral interbody fusion*  
Dubai, UAE, May 2010
  142. *Course Director*, 7th Annual meeting: *Innovative Technologies in Spine Surgery*  
Los Cabos, Mexico June 2010
  143. Symposium: Motion Preservation  
*State of evidence for Cervical TDR*  
North American Spine Society Annual Meeting. Orlando, 2010
  144. Faculty: Contemporary Techniques in Spine Surgery. AAOS Annual Course (CME).  
*Debate: ACDF vs Cervical TDR*  
Rosemont, IL. October 2010.
  145. Invited Speaker: *Defining value for new technologies*



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- Society of Minimally Invasive Spine Surgery (SMISS) Annual Meeting Las Vegas, 2010
146. Faculty: Evidence and Technology Spine Summit. 7<sup>th</sup> Annual Meeting (*CME Course*)  
*MIS decompression in degenerative spondylolisthesis*  
*Spondylolysis: Evidence for pars repair*  
Park City, Utah, February 2011
  147. Instructional Course Faculty. Lecture: *Minimally-Invasive Spine Surgery: Lateral Interbody Fusion*.  
American Academy of Orthopaedic Surgery, Annual Meeting, San Diego, 2011
  148. Instructional Course Faculty. Lecture: *Lumbar Spinal Stenosis: Scoliosis Treatment*.  
American Academy of Orthopaedic Surgery, Annual Meeting, San Diego, 2011
  149. Specialty Day: Faculty: *Defining value for novel spinal technologies*  
American Academy of Orthopaedic Surgery, Annual Meeting, San Diego, 2011
  150. Symposium: Can MIS techniques reduce the number of fusion levels for degenerative scoliosis?  
*International Society for Advanced Spinal Surgery* 11<sup>th</sup> Annual Meeting, Las Vegas. May, 2011
  151. *Course Director*, 8th Annual meeting: *Innovative Technologies in Spine Surgery*  
Los Cabos, Mexico June 2011
  152. Invited Speaker: Defining Value in Spine Care.  
San Diego City Wide Annual Spine Conference, San Diego. September 2011
  153. Symposium: Motion Preservation. *Defining value of novel spine technologies*  
Symposium: Young Spine Surgeon Forum. *Avoiding lawsuits*  
North American Spine Society Annual Meeting. Chicago, 2011
  154. Program Director, IEP Spine Fellows Course  
Lecture : Lateral interbody Technique  
South Beach, FL Nov. 2011
  155. *Course Director*, 9th Annual meeting: *Innovative Technologies in Spine Surgery*  
Carlsbad June 2012
  156. Symposium: Options in cervical motion. *When is multilevel cervical disc replacement appropriate*. International Meeting on Advanced Spine Techniques (IMAST) 19th Annual Meeting. Istanbul, Turkey. July 2012
  157. Symposium : Spondylolisthesis. *MIS latéral is best*. Society for Minimally Invasive Spine Surgery Annual Meeting. Miami, FL September 2012.

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158. Symposium: Motion Preservation: What is the evidence and what does the future hold. *Cervical TDR for multi-level spondylosis*.  
North American Spine Society Annual Meeting. Dallas, 2012
159. Cervical Spine Research Society. Annual Instructional Course  
*Is cervical disc replacement cost-effective ?*  
CSRS Annual Meeting. Chicago 2012
160. Invited Speaker: *Current role and indications for interspinous spacers*  
North American Spine Society Evidence and Technology Summit ; 9th Annual Meeting.  
Park City 2013
161. Ritchey Lecturer: UCSF Spine Symposium.  
*Minimally invasive spine surgery for the treatment of painful degenerative conditions and lumbar deformity*. San Francisco. 2013
162. *Course Director*, 10th Annual meeting: *Innovative Technologies in Spine Surgery*  
Los Cabos, Mexico June 2013
163. Invited Speaker : European Spine Fellows and Young Surgeon Course.  
*Minimally invasive lateral approaches*.  
*Anterior approach to cervical myelopathy*  
Paris, France 2013
164. Symposium : Lateral Approaches. *Radiographic outcomes of lateral interbody fusion*  
*Cervical Spine : Cervical disc replacement*  
Society for Minimally Invasive Spine Surgery (SMISS) Annual Meeting. Las Vegas 2013.
165. 12th Annual Cedars Sinai Symposium on Current Concepts in Spinal Disorders. (CME Course)  
*Are new technologies and MIS Surgery fiscally viable in the coming debate?*  
*Stand-alone lateral fusion in deformity*  
Las Vegas, January 2014
166. Invited Panelist: *Industry marketing strategies and device training*.  
Forum of Conflict of Interest in Academe: Annual Meeting. Association of American Medical  
Colleges. Chicago, April 2014
167. Program Director, IEP Spine Fellows Course (CME)  
Lecture: *Cervical TDR*  
Las Vegas, Nov. 2013
168. *Course Director*, 11th Annual meeting: *Innovative Technologies in Spine Surgery*

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Los Cabos, Mexico June 2014

169. Faculty: Lumbar Spine Cutting Edge Techniques. AAOS Annual Course (CME).  
*Minimally Invasive Decompression and Lateral Fusion with Percutaneous Posterior Instrumentation.* Rosemont, IL. September 2014.
170. Symposium: Value in spine surgery.  
*Integrated practice units and spine surgery*  
Society for Minimally Invasive Spine Surgery Annual Meeting. Miami November 2014.
171. Program Director, IEP Spine Fellows Course (CME)  
Lecture: *Cervical TDR is the evidence based approach*  
Scottsdale, Nov. 2014
172. 13th Annual Cedars Sinai Symposium on Current Concepts in Spinal Disorders. (CME Course)  
*Minimally invasive spine surgery: Clinical and economic outcomes?*  
*Cervical TDR reduces adjacent segment degeneration*  
Las Vegas, January 2015
173. Instructional Course: Lumbar Spine Research Society Annual Meeting (CME Course)  
Degenerative Scoliosis: MIS Surgery  
Chicago, April 2015
174. ISASS Annual Meeting.  
Symposium. *Kyphosis correction: Anterior-lateral release.*  
San Diego May 2015.
175. Faculty : NASS Complication Avoidance and Management in Minimally invasive Spine Surgery.(CME Course)  
*Overview of lateral surgery. Complex lateral surgery*  
Chicago, May 2015
176. Course Director, 11th Annual meeting: *Innovative Technologies in Spine Surgery*  
Los Cabos, Mexico June 2015
178. Society for Minimally Invasive Spine Surgery (SMISS) Annual Meeting.  
What does the data show for MISS for spinal deformity  
Las Vegas November 2015
179. Society for Minimally Invasive Spine Surgery (SMISS) Annual Meeting  
Evaluating MISS in terms of value-based health care.  
Las Vegas November 2015

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180. 9th New York City Minimally Invasive Spine and Navigation Course  
Minimally invasive spine surgery for complex deformity.  
New York December 2015
181. American Academy of Orthopaedic Surgery (AAOS) Specialty Day  
Kyphosis correction: Anterior lateral release.  
Orlando, FL March 5, 2016
182. Joint Section on Disorders of the Spine and Peripheral Nerves (American Association of Neurosurgeons (AANS) and Congress of Neurosurgeons (CNS) Annual Meeting  
*Lateral access MIS surgery : Do the benefits outweigh the risks ?*  
*L4-5 LLIF : Is it safe and reproducible.*  
Orlando, FL March, 2016
183. Lumbar Spine Research Society (LSRS) Annual Meeting  
Invited Speaker. Lateral interbody fusion for degenerative spondylolisthesis  
Chicago, IL April 2016
184. Keynote Speaker : Israel Spine Society, 17th Annual Meeting  
*Cervical TDR – Is it better than fusion ?*  
*Lateral Interbody Fusion ; Lessons learned and advanced techniques.*  
Eilat, Israel May 2016
185. Keynote Speaker : North Carolina Spine Society, Annual Meeting  
*Innovation and Value in Medicine*  
*MIS Approaches to Spinal Deformity*  
Cary, N. Carolina August 2016
186. Society for Minimally Invasive Spine Surgery (SMISS) Annual Meeting.  
Symposia: Mini-ALIF  
Las Vegas October 2016
187. Invited faculty. Spine : Base to Summit  
Lumbar DDD: Best technique includes TLIF  
In my practice, in degenerative cases, here's my rationale for when to use interbody support  
L5-S1 DDD pain, or L5-S1 facet pain, or SI joint pain: How to differentiate between the three entities?  
Beaver Creek. February 2017

**FUNDED RESEARCH ACTIVITIES**

Effects of bFGF, TGF- $\beta$ , IGF-I, and insulin on osteoarthritic human articular cartilage explants

Principle Investigator: Frank Phillips, MD

\$15 000. Orthopaedic Research and Education Foundation Resident Research Grant (1991)

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A prospective, randomized, multi-institutional study comparing pedicle screw fixation to threaded interbody cages in the management of degenerative spondylolisthesis

Principle Investigator: Frank Phillips, MD

\$27 000. Surgical Dynamics (1996)

The biology of intervertebral disc degeneration adjacent to lumbar fusion in a rabbit model

Principle Investigator: Frank Phillips, MD

\$25 000. The University of Chicago, Dept. of Surgery Research Grant (1998)

Use of gene therapy to treat intervertebral disc degeneration.

Principle Investigator: Frank Phillips, MD

\$25 000. The University of Chicago, Dept. of Surgery Research Grant (2002)

Sox9-mediated Gene Therapy in a Degenerative Disc Model

Principle Investigator: Frank Phillips, MD

\$50 000. North American Spine Society Research Grant (2002/03)

BMP-transduced Mesenchymal Stem Cells for Spine Fusion

Collaborator: Frank Phillips, MD

\$50 000. North American Spine Society Research Grant (2002/03)

Biomechanics of Cement Augmentation for Osteoporotic Vertebral Fractures.

Co-Investigator: Frank Phillips

\$600 000 Department of Veterans Affairs, Grant #A3173R (2003)

The role of the spinal cord in modulating discogenic low-back-pain. ,

Co-Investigator: Frank Phillips

\$100,000 Rush University Special Funding Award on Spinal Cord Research (2003/4)

The role of cytokines in discogenic low-back-pain.

Co-Investigator: Frank Phillips

\$100,000, Stryker Biotech, Inc. 2004-2005

The role of the endplate fracture in the pathogenesis of intervertebral disc degeneration.

Co-Investigator: Frank Phillips

\$50,000, Zimmer Spine (2005)

Cell Based Gene Therapy to Promote Regeneration of the Intervertebral Disc in the Rabbit

Co-Principal Investigator

\$30 000 Cervical Spine Research Society (2006)

Biomechanics of Total Disc Replacement for the Cervical Spine

**FRANK M. PHILLIPS, M.D.**

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Role: Co-Investigator

Granting Agency: *Department of Veterans Affairs*

\$925,000/4 years: 2010-2014

Spinal Value Council.

Co-Principal Investigator

\$48 000 Orthopaedic Research and Education Foundation Research Grant Scientific Forum/Spine Care Grant (2011)