# Steven Z. George PT, PhD

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## Education

August 2002 – January 2004 Post Doctoral Fellowship

Pain Research and Rehabilitation Outcomes College of Public Health and Health Professions

University of Florida

August 1999 – August 2002 Doctor of Philosophy

Rehabilitation Science

School of Health and Rehabilitation Sciences

University of Pittsburgh

August 1995 - December 1997 Master of Science

Orthopedic Physical Therapy

School of Health and Rehabilitation Sciences

University of Pittsburgh

August 1990 - December 1994 Bachelor of Science, Summa Cum Laude

Physical Therapy School of Medicine West Virginia University

Licensure

April 27<sup>th</sup>, 2006 – present Licensed Physical Therapist

State of Florida

April 3<sup>rd</sup>, 1995 – present Licensed Physical Therapist

Commonwealth of Pennsylvania

**Employment** 

**Academic Positions** 

December 2009 – present Associate Professor and Assistant Department Chair

Department of Physical Therapy

University of Florida Gainesville, FL

July 2009 – December 2009 Associate Professor (tenured)

Department of Physical Therapy

University of Florida Gainesville, FL January 2004 – June 2009 Assistant Professor (tenure accruing)

Department of Physical Therapy

University of Florida Gainesville, FL

August 2002 – January 2004 Research Fellow

Department of Clinical Health Psychology

Department of Physical Therapy

University of Florida Gainesville, FL

June 2000 - August 2002 Study Coordinator

Department of Physical Therapy

University of Pittsburgh

Pittsburgh, PA

December 1999 – June 2000 Research Assistant

Department of Physical Therapy

University of Pittsburgh

Pittsburgh, PA

**Clinical Positions** 

December 1999 – August 2002 Casual Call/Part-Time Staff Therapist

Centers for Rehab Services/UPMC

Pittsburgh, PA

June 1997 - December 1999 Facility Director

Centers for Rehab Services/UPMC

Pittsburgh, PA

January 1995 - June 1997 Staff Therapist I-III

University of Pittsburgh Medical Center

Pittsburgh, PA

#### **Honors and Awards**

# Early Career Awards

John C. Liebeskind Early Career Scholar Award

Recognition of exceptional accomplishment and promise in pain scholarship

May 2009 – American Pain Society

Jack Wessel Excellence Award for Assistant Professors

Recognition of outstanding accomplishments as an assistant professor

April 2009 – University of Florida

Eugene Michels New Investigator Award

Acknowledgment of an outstanding new investigator with commitment to a defined research theme

June 2007 – American Physical Therapy Association

#### **Publication Awards**

JOSPT Excellence in Research Award

Best research article published in the Journal of Orthopaedic & Sports Physical Therapy

February 2010 - Orthopaedic and Sports Sections, APTA

"A randomized sham-controlled trial of a neurodynamic technique in the treatment of carpal tunnel syndrome"

Bialosky JE, Bishop MD, Price DD, Robinson ME, Vincent KR, George SZ

#### Jack Walker Award

Contribution to the understanding of clinical practice and patient care published in *Physical Therapy* June 2003 - Chattanooga Corporation and APTA

"Identifying psychosocial variables in patients with acute, work-related low back pain: the importance of fear-avoidance beliefs"

Fritz JM and George SZ

#### Rose Excellence in Research Award

Clinical research article with significant impact on orthopaedic physical therapy practice.

February 2003 - Orthopaedic Section, APTA

"The role of fear-avoidance beliefs in acute low back pain: relationships with current and future disability and work status"

Fritz JM, George SZ, Delitto A

#### Research Awards

Excellence in Research Award

Highest scored research abstract submitted to sports section.

February 2011 - Sports Physical Therapy Section, APTA

"Fear of re-injury/low confidence 1 year after ACL reconstruction: high prevalence and altered self-ratings"

Lentz TA, Zeppieri Jr G, Moser MW, Indelicato P, George SZ, Chmielewski TL.

## COL David G. Greathouse Excellence in Research Award

Outstanding student-faculty research project.

May 2008 - US Army-Baylor University Doctoral Program in Physical Therapy

"The effects of traditional sit-up training versus core stabilization exercises on sit-up performance on US Army Soldiers: A cluster randomized trial"

Childs JD, **George SZ**, Wright AC, Dugan JL, Benedict T, Fortenberry A, Bush J, Preston J, McQueen R, Teyhen DS

## Excellence in Research Award

Highest scored research abstract submitted to sports section.

February 2008 - Sports Physical Therapy Section, APTA

"Identifying impairments that predict function: a preliminary step in developing return-to-play guideline for ACL reconstruction"

Lentz TA, Tillman SM, Moser MW, Indelicato PA, George SZ, Chmielewski TL

#### Other Awards and Honors

Scholarships

PODS II (2001-2002)

Foundation for Physical Therapy (\$15,000)

## PODS I (2000-2001)

Foundation for Physical Therapy (\$7,500)

Class Marshall
School of Health and Rehabilitation Studies
University of Pittsburgh, April 1998

Order of the Grail
Junior Honor Society
West Virginia University, December 1993

Outstanding Freshman Scholar Award Phi Kappa Phi Honor Society West Virginia University, December 1991

# **Grant Activity**

Ongoing: Principal Investigator

Title: Investigation of the STarT Back Screening Tool in Physical Therapy Settings

Participation: Principal Investigator (5% Effort)

Agency: Brooks Endowment

Direct Costs: \$40,000 Funding Period 2010 – 2011

This study investigates the discriminant and predictive validity of the STarT back screening tool for identifying psychological distress and poor outcomes for conservative rehabilitation of low back pain.

Title: Biopsychosocial Influence on Shoulder Pain

Participation: Principal Investigator (30% Effort)

Type: R01AR055899

Agency: National Institutes of Health (NIAMS/NINDS)

Direct Costs: \$1,900,000 Funding Period: 2008 – 2013

This study investigates whether subjects with both psychological <u>and</u> genetic risk factors will be more likely to exhibit elevated experimental pain sensitivity, resulting in a) increased exercise-induced shoulder pain and b) development of post-operative chronic shoulder pain.

Ongoing: Co-Investigator

Title: Resistance Exercise Effects on Fear-Avoidance Beliefs and Physical Function in

Obese, Older Adults with Chronic Low Back Pain (PI: Vincent HK)

Participation: Co-Investigator (3-4% Effort)

Type: R03AR057552

Agency: National Institutes of Health (NIAMS)

Direct Costs: \$150,000 Funding Period: 2010 – 2012

This study investigates the effects of resistance exercise on physical and psychosocial outcomes from older, obese adults with chronic low back pain.

Title: Central Mechanisms of Body Based Intervention for Musculoskeletal Low Back

Pain (PI: Bishop MD)

Participation: Co-Investigator (10% Effort)

Type: R01AT006334

Agency: National Institutes of Health (NCCAM)

Direct Costs: \$1,250,000 Funding Period: 2011 – 2016 This study is investigating the changes in brain activity that occur a) from transition of pain free to exercise induced low back pain and b) in response to spinal manipulation.

Completed: Principal Investigator

Title: Prevention of Low Back Pain in the Military: A Randomized Clinical Trial

Participation: Principal Investigator of Award Site (30% Effort)

Type: PR054098

Agency: Department of Defense

Direct Costs: \$890,000

Funding Period: 2006 – 2011 (1 year no cost extension)

This cluster randomized clinical trial investigates the effect of a novel prevention program to limit the development of chronic low back pain in Soldiers.

Title: Mechanisms of Neural Mobilization for Chronic Pain

Participation: Principal Investigator (25% Effort)

Type: R21AT002796

Agency: National Institutes of Health (NCCAM)

Direct Costs: \$270,000

Funding Period: 2007 – 2009 (1 year no cost extension)

This study investigated whether patients with carpal tunnel syndrome demonstrate excessive central sensitization of pain and if a novel manipulative and body-based method (neural mobilization) reduces central sensitization of pain.

Title: Behavioral Interventions for Low Back Pain

Participation: Principal Investigator (25% Effort)

Type: R03AR051128

Agency: National Institutes of Health (NIAMS)

Direct Costs: \$150,000

Funding Period: 2005 - 2009 (1 year no cost extension)

This randomized trial compared the efficacy of two different behavioral interventions for reducing disability in patients with acute and sub-acute low back pain.

Title: Biopsychosocial Factors' Influence on Shoulder Pain

Participation: Principal Investigator (20% Effort)
Type: Research Opportunity Incentive Fund

Agency: University of Florida

Direct Costs: \$87,500 Funding Period: 2005 – 2006

This study investigated the contribution of specific genetic and psychological factors to the development of post-operative chronic shoulder pain.

#### Ended: Co-Investigator

Title: Pain Rehabilitation: Patient Centered Outcomes (PI: Robinson ME)

Participation: Co-Investigator (5% Effort)

Type: R01NS047119

Agency: National Institutes of Health (NINDS/NIMH)

Direct Costs: \$750,000 Funding Period: 2006 – 2009

This study investigated the reliability and validity of patient determined criteria for outcomes related to various pain rehabilitation interventions.

Title: The Effect of Plyometric Exercise Intensity on Function & Articular Cartilage

Metabolism After ACL Reconstruction (PI: Chmielewski TL)

Participation: Co-investigator (1% Effort)

Type: Research Grant

Agency: National Football League Charities

Direct Costs: \$125,000 Funding Period: 2008 – 2010

This study investigated differences in plyometric exercise protocols on return to sport and cartilage degradation.

# **Publications**

\* - post-doc or student author mentored by SZG Underline – senior author

## Peer-Review

- 1. Werneke MW, Hart DL, **George SZ**, Deutscher D, Stratford PW. Change in psychosocial distress associated with pain and functional status outcomes in patients with lumbar impairments referred to physical therapy services. *J Orthop Sports Phys Ther*, in press.
- 2. Zeppieri G, Lentz TA, Atchison JW, Indelicato PA, Moser MW, Vincent KR, <u>George SZ</u>. Patient defined success criteria for musculoskeletal pain outcomes in outpatient physical therapy settings. *Arch Phys Med Rehabil*, in press.
- 3. Simon CB\*, Stryker SE, <u>George SZ</u>. Comparison of work-related fear-avoidance across different anatomical locations with musculoskeletal pain. *J Pain Research*, in press.
- 4. Coronado RC\*, Wurtzel WA, Simon CB, Riddle DL, <u>George SZ</u>. Bibliometric analysis of articles published from 1980 to 2009 in the Journal of Orthopaedic & Sports Physical Therapy. *J Orthop Sports Phys Ther*, in press.
- 5. Bialosky JE, Bishop MD, Price DD, Robinson ME, <u>George SZ</u>. Heightened pain sensitivity in individuals with signs and symptoms of carpal tunnel syndrome and its relationship to clinical outcomes following a manual therapy intervention. *Man Ther*, in press.
- 6. Hart DL, Werneke MW, **George SZ**, Deutscher D. Single item screens identified patients with elevated levels of depressive and somatization symptoms in outpatient physical therapy. *Qual Life Res*, in press.
- 7. **George SZ**, Lentz TA, Zeppieri G, Lee D, Chmielewski TL. Analysis of shortened versions of the Tampa Scale for Kinesiophobia and Pain Catastrophizing Scale for patients following anterior cruciate ligament reconstruction. *Clin J Pain*, in press.
- 8. Coronado RA\*, Alappattu MJ\*, Hart DL, <u>George SZ</u>. Total number and severity of comorbidities do not differ based on anatomical location of musculoskeletal pain. *J Orthop Sports Phys Ther*, in press.
- 9. Chmielewski TL, Zeppieri G, Lentz TA, Tillman SM, Moser MW, Indelicato PA, <u>George SZ</u>. Longitudinal changes in psychosocial factors and their association with knee pain and function after ACL reconstruction. *Phys Ther*, in press.
- 10. Hart DL, Werneke MW, **George SZ**, Deutscher D, Stratford PW. Using intake and change in multiple psychosocial measures to predict functional status outcomes in people with lumbar spine impairments: a preliminary analysis. *Phys Ther*, in press.

- 11. Bishop MD, Beneciuk JM\*, <u>George SZ</u>. Immediate reduction in temporal sensory summation after thoracic spine manipulation. *Spine J*, in press.
- 12. Bialosky JE, Bishop MD, **George SZ**, Robinson ME. Placebo response to manual therapy: Something out of nothing? *J Man Manip Ther*, in press.
- 13. Childs JD, Teyhen DS, Van Wyngaarden JJ, Dougherty BF, Ladislas BJ, Helton GL, Robinson ME, Wu SS, <u>George SZ</u>. Predictors of web-based follow-up response in the Prevention of Low Back Pain in the Military Trial. *BMC Musculoskelet Disord*, 2011;12:132.
- 14. Bishop MD, Horn ME, <u>George SZ</u>. Exercise-induced pain intensity predicted by pre-exercise fear of pain and pain sensitivity. *Clin J Pain*, 2011;27(5):398-404.
- 15. Alappattu MJ, Bishop MD, Bialosky, **George SZ**, Robinson ME. Stability of behavioral estimates of activity-dependent modulation of pain. *J Pain Res*, 2011;4: 151-157.
- 16. Hart DL, Werneke MW, Deutscher D, **George SZ**, Stratford PW. Effect of fear-avoidance beliefs of physical activities on a model that predicts risk-adjusted functional status outcomes in patients treated for a lumbar spine dysfunction. *J Orthop Sports Phys Ther*, 2011;41(5):336-345.
- 17. Main CJ and **George SZ**. Psychologically informed practice for management of low back pain: future directions in practice and research. *Phys Ther*, 2011;91(5):820-824.
- 18. Fritz JM, Beneciuk JM\*, **George SZ**. The relationship between categorization and the STarT back screening tool and prognosis for patients with low back pain receiving physical therapy. *Phys Ther*, 2011;91(5):722-732.
- 19. Nicholas MK and **George SZ**. Psychologically informed interventions for low back pain: an update for physical therapists. *Phys Ther*, 2011;91(5):765-776.
- 20. Coronado RA\*, Riddle DL, Wurtzel WA\*, <u>George SZ</u>. Bibliometric analysis of articles published from 1980 to 2009 in *Physical Therapy*, Journal of the American Physical Therapy Association. *Phys Ther*, 2011;91(5):642-655.
- 21. **George SZ** and Stryker SE. Fear-avoidance beliefs and clinical outcomes across multiple anatomical locations for patients seeking outpatient physical therapy for musculoskeletal pain. *J Orthop Sports Phys Ther*, 2011;41(4): 249-259.
- 22. Teyhen DS, **George SZ**, Dugan JL, Williamson JN, Neilson BD, Childs JD. Inter-rater reliability of ultrasound imaging of the trunk musculature among novice raters. *J Ultrasound Med*, 2011;30(3):347-356.
- 23. Coronado RA\*, Kindler LL\*, Valencia C\*, <u>George SZ</u>. Thermal and pressure pain sensitivity in patients with unilateral shoulder pain: comparison of involved and uninvolved sides. *J Orthop Sports Phys Ther*, 2011;41(3):165-173.
- 24. **George SZ**, Coronado RA, Beneciuk JM, Valencia C, Werneke MW, Hart DL. Depressive symptoms, anatomical region, and clinical outcomes for patients seeking outpatient physical therapy for musculoskeletal pain. *Phys Ther*, 2011;91(3): 358-372.

- 25. Bishop MD, Horn ME, **George SZ**, Robinson ME. Self-reported pain and disability outcomes from an endogenous model of muscular back pain. *BMC Musculoskelet Disord*, 2011;12:35.
- 26. **George SZ**, Calley D\*, Valencia C\*, Beneciuk JM\*. Clinical investigation of pain related fear and pain catastrophizing for patients with low back pain. *Clin J Pain*, 2011;27(2):108-115.
- 27. Valencia C\*, Robinson ME, <u>George SZ</u>. Socioeconomic status influences the relationship among fear-avoidance beliefs and disability. *Pain Med*, 2011;12(2):328-336.
- 28. Kindler LL\*, Valencia C\*, Fillingim RB, George SZ. Sex differences in experimental and clinical pain sensitivity for patients with shoulder pain. *Eur J Pain*, 2011;12(2):118-123.
- 29. Valencia C\*, Fillingim RB, George SZ. Suprathreshold heat response is associated with clinical pain intensity for patients with shoulder pain. *J Pain*, 2011;12(1):133-140.
- 30. Vincent HK, Omli MR, Day T, Hodges M, Vincent KR, George SZ. Fear of movement, quality of life, and self-reported disability in obese patients with chronic lumbar pain. *Pain Med*, 2011 12(1):154-164.
- 31. Calley D\*, Jackson S, Collins H, <u>George SZ</u>. Identifying patient fear-avoidance beliefs by physical therapists managing patients with low back pain. *J Orthop Sports Phys Ther*, 2010;40(12):774-783.
- 32. Stutts LA, Hirsh AT, **George SZ**, Robinson ME. Investigating patient characteristics on pain assessment using virtual human technology. *Eur J Pain*, 2010;14(10):1040-1045.
- 33. **George SZ** and Robinson ME. Preference, expectation, and satisfaction in a clinical trial of behavioral interventions for acute and sub-acute low back pain (NCT00373867). *J Pain*, 2010;11(11):1074-1082.
- 34. Childs JD, Teyhen DS, Casey PR, McCoy-Singh KA, Feldtmann AW, Wright AC, Dugan JL, Wu SS, <u>George SZ</u>. Effects of traditional sit-up training versus core stabilization exercises on short-term musculoskeletal injury rates in US Army Soldiers: A randomized clinical trial. *Phys Ther*, 2010;90(10):1404-1412.
- 35. **George SZ**, Wittmer VT, Fillingim RB, Robinson ME. Comparison of graded exercise and graded exposure clinical outcomes for patients with chronic low back pain. *J Orthop Sports Phys Ther*, 2010;40(11):694-704.
- 36. Vincent HK, Lamb KM, Day TI, Tillman SM, Vincent KR, <u>George SZ</u>. Morbid obesity is associated with fear of movement and lower quality of life in patients with knee pain-related diagnoses. *PMR*, 2010;2(8):713-722.
- 37. Mintken PE, Cleland JA, Whitman JM, <u>George SZ</u>. Psychometric properties of the Fear-Avoidance Beliefs Questionnaire and Tampa Scale of Kinesiophobia in patients with shoulder pain. *Archives Phys Med Rehabil*, 2010;91(7):1128-1136.
- 38. Beneciuk JM\*, Bishop MD, <u>George SZ</u>. Pain catastrophizing predicts pain intensity during a neurodynamic test for the median nerve in health participants. *Man Ther*, 2010;15(4):370-375.
- 39. **George SZ**, Valencia CV\*, Beneciuk JM\*. A psychometric investigation of fear-avoidance model measures in patients with chronic low back pain. *J Orthop Sports Phys Ther*, 2010;40(4):197-205.

- 40. Robinson ME, Bialosky JE\*, Bishop MD, Price DD, <u>George SZ</u>. Supra-threshold scaling, temporal summation, and after-sensation: relationships to each other and anxiety/fear. *J Pain Res*, 2010;3:25-32.
- 41. Bialosky JE\*, Bishop MD, Robinson ME, <u>George SZ</u>. The relationship of the audible pop to hypoalgesia associated with high velocity, low amplitude thrust manipulation. A secondary analysis of an experimental study in pain free participants. *J Manipulative Physiol Ther*, 2010;33(2):117-124.
- 42. Bishop MD, Craggs JG, Horn ME, **George SZ**, Robinson ME. Relationship of intersession variation in negative pain-related affect and responses to thermally evoked pain. *J Pain*, 2010;11(2):172-8.
- 43. Childs JD, Teyhen DS, Benedict TM, Morris JB, Fortenberry AD, McQueen RM, Preston JB, Wright AC, Dugan JL, <u>George SZ</u>. Effects of sit-up training versus core stabilization exercises on sit-up performance. *Med Sci Sports Exerc*, 2009;41(11):2072-2083.
- 44. Bialosky JE\*, Bishop MD, Zeppieri G, <u>George SZ</u>. Spinal manipulative therapy has an immediate effect on thermal pain sensitivity in people with low back pain: a randomized controlled trial. *Phys Ther*, 2009;89(12):1292-1303.
- 45. Bialosky JE\*, Bishop MD, Price DD, Robinson ME, Vincent KR, <u>George SZ</u>. A randomized sham controlled trial of a neurodynamic technique in the treatment of carpal tunnel syndrome (NCT00929123). *J Orthop Sports Phys Ther*, 2009;39(10):709-723.
- 46. **George SZ**, Valencia C\*, Zeppieri G, Robinson ME. Development of a self report measure of fearful activities for patient with low back pain the Fear of Daily Activities Questionnaire (FDAQ). *Phys Ther*, 2009;89(9):969-979.
- 47. Bialosky JE\*, Bishop MD, Price DD, Robinson ME, <u>George SZ</u>. The mechanisms of manual therapy in the treatment of musculoskeletal pain: a proposed comprehensive model. *Man Ther*, 2009;14:531-538.
- 48. Hart DL, Werneke MW, **George SZ**, Matheson JW, Wang YC, Cook KF, Mioduski JE, Choi SW. Single items of fear-avoidance beliefs scales for work and physical activities accurately identified patients with high fear. *Phys Ther*, 2009;89(8):770-785.
- 49. **George SZ**, Teyhen DS, Wu SS, Wright AC, Dugan JL, Yang G, Robinson ME, Childs JD. Psychosocial education improves low back pain beliefs: results from a cluster randomized clinical trial (NCT00373009) in a primary prevention setting. *Eur Spine J*, 2009 18(7):1050-1058.
- 50. Robinson ME, Teyhen DS, Wu SS, Wright AC, Dugan JL, Yang G, Childs JD, George SZ. Mental health symptoms in combat medic training: a longitudinal examination. *Mil Med*, 2009;174(6):572-577.
- 51. **George SZ** and Zeppieri G. Physical therapy utilization of graded exposure for patients with low back pain. *J Orthop Sports Phys Ther*, 2009;39(7):496-505.
- 52. Beneciuk JM\*, Bishop MD, <u>George SZ</u>. Effects of upper-extremity neural mobilization on thermal pain sensitivity: a sham controlled study in asymptomatic participants. *J Orthop Sports Phys Ther*, 2009;39(6):428-438.

- 53. Werneke MW, Hart DL, **George SZ**, Stratford PW, Matheson JW, Reyes A. Clinical outcomes for patients classified by fear-avoidance beliefs and centralization phenomenon. *Archives Phys Med Rehabil*, 2009:90:768-777.
- 54. Lentz TA\*, Barabas J, Bishop MD, Day T, George SZ. The relationship of pain intensity, physical impairment, and pain-related fear to function in patients with shoulder pathology. *J Orthop Sports Phys Ther*, 2009;39(4):270-7.
- 55. Hirsh AT, **George SZ**, Robinson ME. Pain assessment and treatment disparities: a virtual human technology investigation. *Pain*, 2009;143(1-2):106-113.
- 56. **George SZ** and Hirsh AT\*. Psychological influence on experimental pain sensitivity and clinical pain intensity for patients with shoulder pain. *J Pain*, 2009;10(3):293-299.
- 57. Beneciuk JM\*, Bishop MD, <u>George SZ</u>. Clinical prediction rules for physical therapy interventions: a systematic review. *Phys Ther*, 2009;89:114-124.
- 58. Lentz TA, Tillman SM, Moser MW, Indelicato PA, **George SZ**, Chmielewski TL. Factors associated with function after anterior cruciate ligament reconstruction. *Sports Health*, 2009;1(1) 47-53.
- 59. Dannecker EA and **George SZ**. A comparison of laboratory measures of escape and avoidance behavior. *J Pain*, 2009;10(1):53-59.
- 60. Chmielewski TL, Jones D, Day T, Tillman S, Lent TA, <u>George SZ</u>. The association of fear of movement/re-injury and function during anterior cruciate ligament reconstruction rehabilitation. *J Orthop Sports Phys Ther*, 2008;38(12):746-753.
- 61. Bialosky JE\*, Hirsh AT, Robinson ME, <u>George SZ</u>. Manipulation of pain catastrophizing: an experimental study of healthy subjects. *J Pain Res*, 2008;1:35-41.
- 62. **George SZ**, Zeppieri G, Cere AL, Cere MR, Borut MS, Hodges MJ, Reed DM, Valencia C, Robinson ME. A randomized trial of behavioral physical therapy interventions for acute and sub-acute low back pain (NCT00373867). *Pain*, 2008;140:145-157.
- 63. **George SZ**, Dover GC, Wallace MR, Sack BK, Herbstman DM, Aydog E, Fillingim RB. Biopsychosocial influence on exercise-induced delayed onset muscle soreness at the shoulder: pain catastrophizing and catechol-*O*-methyltransferase (*COMT*) diplotype predict pain ratings. *Clin J Pain*, 2008; 24(9):793-801.
- 64. Hirsh AT, **George SZ**, Bialosky JE\*, and Robinson ME. Fear of pain, pain catastrophizing, and acute pain perception: relative prediction and timing of assessment. *J Pain*, 2008; 9(9):806-812.
- 65. **George SZ**, Wallace MR, Wright TW, Moser MW, Greenfield WH, Sack BK, Herbstman DM, Fillingim RB. Evidence for a biopsychosocial influence on shoulder pain: pain catastrophizing and catechol-*O*-methyltransferase (*COMT*) diplotype predict clinical pain ratings. *Pain*, 2008;136(1):53-61.
- 66. Bialosky JE\*, Bishop MD, Robinson ME, Barabas JA\*, <u>George SZ</u>. The influence of expectation on spinal manipulation induced hypoalgesia: an experimental study in normal subjects. *BMC Musculoskelet Disord*, 2008;9:19.

- 67. **George SZ**, Childs JD, Fritz JM. Investigation of elevated fear-avoidance beliefs for patients with low back pain: a secondary analysis involving patients enrolled in physical therapy clinical trials. *J Orthop Sports Phys Ther*, 2008;38(2)50-58.
- 68. Mann BJ, Grana WA, Indelicato PA, **George SZ**. A survey of sports medicine physicians regarding psychological issues in athlete-patients. *Am J Sports Med*, 2007;35(12):2140-2147.
- 69. Peters C\* and **George SZ**. Outcomes following plyometric rehabilitation for the young throwing athlete: a case report. *Physiother Theor Pract*, 2007;23(6):351-364.
- 70. **George SZ**, Childs JD, Teyhen DS, Wu SS, Wright AC, Dugan JL, Robinson ME. Rationale, design, and protocol for the prevention of low back pain in the military (POLM) trial (NCT00373009). *BMC Musculoskelet Disord*, 2007;8:92.
- 71. Dannecker EA, **George SZ**, Robinson ME. Influence and stability of pain anchors for an investigation of cold pressor pain tolerance. *J Pain*, 2007;8(6):476-482.
- 72. **George SZ**, Bialosky JB\*, Wittmer VT, Robinson ME. Sex differences in pain drawing area for individuals with chronic musculoskeletal pain. *J Orthop Sports Phys Ther*, 2007;37(3) 115-121.
- 73. Fritz SL, **George SZ**, Wolf SL, Light KE. Participant perception of recovery as criterion to establish importance of improvement for constraint-induced movement therapy outcome measures: results from a preliminary study. *Phys Ther*, 2007;87(2):170-178.
- 74. Hirsh AT, **George SZ**, Riley JL, and Robinson ME. An evaluation of the construct and measurement of pain catastrophizing by the pain coping questionnaire. *Eur J Pain*, 2007;11:75-81.
- 75. **George SZ**, Dover GC, Fillingim RB. Fear of pain influences outcomes following exercise induced delayed onset muscle soreness at the shoulder. *Clin J Pain*, 2007;1:76-84.
- 76. **George SZ**, Wittmer VT, Fillingim RB, Robinson ME. Sex and pain-related psychological variables are associated with thermal pain sensitivity for patients with chronic low back pain. *J Pain*, 2007;8(1):2-10.
- 77. Hicks GE, **George SZ**, Nevitt MA, Cauley JA, Vogt MT. Measurement of lumbar lordosis: Interrater reliability, minimum detectable change, and longitudinal variation. *J Spinal Disord and Tech*, 2006;19(7):501-506.
- 78. **George SZ**, Bishop MD, Bialosky JE\*, Zeppieri G, Robinson ME. The immediate analgesic effects of spinal manipulation on thermal pain sensitivity. *BMC Musculoskelet Disord*, 2006;7:68.
- 79. **George SZ**, Fritz JM, Childs JD, Brennan GP. Sex differences in predictors of outcome in selected physical therapy interventions for patients with acute low back pain. *J Orthop Sports Phys Ther*, 2006;36(6):554-563.
- 80. **George SZ**, Wittmer VT, Fillingim RB, Robinson ME. Fear-avoidance beliefs and temporal summation of evoked thermal pain influence self-report of disability in patients with chronic low back pain. *J Occup Rehabil*, 2006;16(1):92-105.

- 81. **George SZ**, Dannecker EA, Robinson ME. Fear of pain, not pain catastrophizing, predicts acute pain intensity, but neither factor predicts tolerance or blood pressure response: an experimental investigation in pain-free individuals. *Eur J Pain*. 2006;10:457-465.
- 82. Ilfeld BM, Gearen PF, Enneking FK, Berry LF, Spadoni EH, George SZ, Vandenborne K: Total hip arthroplasty as an overnight-stay procedure using an ambulatory continuous psoas compartment nerve block: a prospective feasibility study. *Reg Anesth Pain Med.* 2006; 31(2):113-118.
- 83. **George SZ**, Fritz JM, and McNeil DW. Fear-avoidance beliefs as measured by the fear-avoidance beliefs questionnaire (FABQ): change in FABQ is predictive of change in self-report of disability and pain intensity for patients with acute low back pain. *Clin J Pain*. 2006;22:197-203.
- 84. Ilfeld BM, Gearen PF, Enneking FK, Berry LF, Spadoni EH, **George SZ**, Vandenborne K: Total knee arthroplasty as an overnight-stay procedure using continuous femoral nerve blocks at home: a prospective feasibility study. *Anesth Analg*. 2006;102:87-90.
- 85. **George SZ**, Bialosky JE, Donald DA. The centralization phenomenon and fear-avoidance beliefs as prognostic factors for acute low back pain: a preliminary investigation involving patients classified for specific exercise. *J Orthop Sports Phys Ther*. 2005;35(9):580-587.
- 86. Robinson ME, Brown JL, **George SZ**, Edwards PS, Atchison JW, Hirsh AT, Waxenberg LB, Wittmer V, and Fillingim RB. Multidimensional success criteria and expectations for treatment of chronic pain: The patient perspective. *Pain Med.* 2005;6(5):336-345.
- 87. **George SZ** and Hirsh AT\*. Distinguishing patient satisfaction with treatment delivery from treatment effect: a preliminary investigation of patient satisfaction with symptoms following physical therapy treatment of low back pain. *Archives Phys Med Rehabil*. 2005;86:1338-1344.
- 88. Robinson ME, Dannecker EA, **George SZ**, Otis J, Atchison JW, Fillingim RB. Sex differences in the associations among psychological factors and pain report: a novel psychophysical study of patients with chronic low back pain. *J Pain*. 2005;6(7):463-470.
- 89. **George SZ** and Delitto A. Clinical examination variables discriminate between treatment based classification groups. *Phys Ther*. 2005;85:306-314.
- 90. Stevens JE, Walter GA, Okereke E, Scarborough JL, **George SZ**, Kelley MJ, Tillman SM, Gibbs JD, Elliot MA, Frimel TN, Gibbs CP, Vandenborne K. Muscle adaptations with immobilization and rehabilitation after ankle fracture. *Med Sci Sports Exerc*. 2004;36(10):1695-1701.
- 91. Robinson ME, **George SZ**, Dannecker EA, Jump RL, Hirsh AT, Gagnon CM, Brown JL. Sex differences in pain anchors revisited: further investigation of "most intense" pain events and common pain events. *Eur J Pain*. 2004;8:299-305.
- 92. **George SZ**, Bialosky JE, Fritz JM. Physical therapy management of a patient with acute low back pain and elevated fear-avoidance beliefs a case report. *Phys Ther*. 2004;84(6):538-549.
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- 100. **George SZ.** Differential diagnosis and treatment for a patient with lower extremity symptoms. *J Orthop Sports Phys Ther*. 2000;30(8):468-72.
- 101. Fritz JM and **George S**. The use of a classification approach to identify subgroups of patients with acute low back pain. Interrater reliability and short-term treatment outcomes. *Spine*. 2000;25(1):106-14.

# Submitted for Peer-Review

\* - student or post-doctoral author mentored by SZG Underline – senior author

- 1. Bishop MD, Horn ME, Lott DJ, Arpan I, <u>George SZ</u>. No association between spinal muscle damage and exercise induced low back pain intensity. *Spine J*, in review.
- 2. Lentz TA, Tillman SM, Indelicato PA, Moser MW, **George SZ**, Chmielewski TL. Clinical factors that differ between return to sports status groups following ACL reconstruction. *J Orthop Sports Phys Ther*, in review.
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- 4. **George SZ** and Bishop MD. Patient subgroups for acute and sub-acute low back pain: a pragmatic answer to a major problem. *Clin J Pain*, in review.
- 5. Beneciuk JM\*, Robinson ME, <u>George SZ</u>. Low back pain subgroups using fear-avoidance model measures: results of a cluster analysis. *Clin J Pain*, in review.
- 6. Valencia C\*, Kindler LK, Fillingim RB, George SZ. Investigation of central pain processing in shoulder pain: converging results from two musculoskeletal pain models. *J Pain*, in review.

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- 8. Parr JJ\*, Borsa PA, Fillingim RB, Tillman MD, Manini TM, Gregory CM, and <u>George SZ</u>. Pain related fear and catastrophizing predict pain intensity and disability independently using an induced muscle injury model. *J Pain*, in review.

## **Guest Editorials**

- 1. Main CJ and **George SZ**. Psychosocial influences on low back pain: why should you care? *Phys Ther*. 2011; 91(5):609-613.
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- 3. **George SZ**. It came from the swamp: gators answer the call. *Orthopaedic Physical Therapy Practice*. 2008;20(4): 167.
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- 6. **George SZ**. Fear: a factor to consider in musculoskeletal rehabilitation. *J Orthop Sports Phys Ther*. 2006;36(5):264-266.

#### Letters to Editor, Responses, and Commentaries

- 1. **George SZ**, Beneciuk JM, Bishop MD. Author response to "On Clinical Prediction Rules for Physical Therapy Interventions..." *Phys Ther*. 2009
- 2. **George SZ** and Robinson ME. Response to Keele team's response letter. *Pain*. 2009 (142); 154-155.
- 3. Bialosky JE, Bishop MD, **George SZ.** Regional interdependence: a musculoskeletal examination model whose time has come. *J Orthop Sports Phys Ther*. 2008 Mar;38(3):159; author reply 160.
- 4. **George SZ** and Robinson ME. Risk and physical therapy. *J Orthop Sports Phys Ther*. 2007 Sep;37(9):570-1; author reply 571-2.
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## Other Manuscripts

\* - student author mentored by SZG Underline – senior author

- 1. McCrea EC and <u>George SZ</u>. Outcome following augmented soft tissue mobilization for patients with knee pain: a case series. *Orthop Phys Ther Pract*, 2010;22(2):69-74.
- 2. Groth KR, Finnie L, <u>George SZ</u>. Varying responses to similar physical therapy interventions for cervical radiculopathy: a case series. *Orthop Phys Ther Pract*, 2010;22(2):83-89.
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# **Book Chapters and Monographs**

- 1. George SZ. A physical therapist's perspective on manual therapy: clinical effectiveness and selected mechanism. Chapter 14 in *The science and clinical application of manual therapy*. Elsevier. Edinburgh (UK). Editors: King H, Jnig W, Patterson M (2011).
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- 3. Frey Law L and **George SZ**. Individual differences and pain variability. Chapter 4 in *Mechanisms* and management of pain for the physical therapist. International Association for the Study of Pain Press. Seattle, WA (USA). Editor: Sluka KA (2009).
- 4. **George SZ**. Contributor to *Writing case reports: a how to manual for clinicians*, 3<sup>rd</sup> edition. American Physical Therapy Association. Alexandria, VA (USA). Editor: Irene McEwen (2009).
- 5. **George SZ** and Bishop MD. Low back pain: causes and differential diagnosis. Chapter 9 in *Musculoskeletal rehabilitation*, 1<sup>st</sup> edition, volume III (treatment of pathology and injuries). Saunders Elsevier. St. Louis, MO (USA). Editors: Magee DJ, Zachazewski JE, Quillen WS (2009).
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- 7. **George SZ,** Delitto A, Lehman RC. Conservative treatment of athletes with low back syndromes. Chapter 29 in *Low back syndromes: integrated clinical management,* 1<sup>st</sup> edition. McGraw-Hill Companies, Inc. New York, NY. Editor: Morris CE (2006).

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# **Published Abstracts**

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- 2. Larkin KA, Borsa PA, Parr JJ, **George SZ**. Pain intensity with abduction consistently associated with shoulder disability during recovery of induced muscle pain. *J Athl Train*, abstracted 2011.
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- 24. Bialosky JE and **George SZ**. Factors predicting improved outcomes for individuals with carpal tunnel syndrome receiving upper extremity manual therapy. *J Orthop Sports Phys Ther*, abstracted 2010.
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- 81. **George SZ,** Fritz JM, Bialosky JE, Donald DA. The effect of a fear-avoidance based physical therapy intervention for patients with acute low back pain. four week results from a randomized clinical trial. *J Orthop Sports Phys Ther*, abstracted 2003.
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- 83. **George SZ**, Hicks GE, Vogt MT, Nevitt MA, Cauley JA. The relationship between lumbar lordosis and radiological variables and lumbar lordosis and clinical variables in older, African-American women. *Proceedings of the Annual Meeting of the International Society for the Study of the Lumbar Spine*, abstracted 2002.
- 84. **George SZ**, Fritz JM, and Erhard RE. A comparison of fear avoidance beliefs in patients with lumbar spine pain and patients with cervical spine pain. *J Orthop Sports Phys Ther*, abstracted 2002.
- 85. Fritz JM, **George S**. The use of a classification approach to identify subgroups of patients with acute low back pain: inter-rater reliability and short-term treatment outcomes. *J Orthop Sports Phys Ther*, abstracted 2000.

## **Presentations**

<u>International Presentations – Invited</u>

August 2010 Subgrouping low back pain: an answer for a major problem? Plenary speaker at

Pain, Mind, and Movement III, Official Satellite Symposium of the 13<sup>th</sup> World Congress on Pain, International Association for the Study of Pain, Montreal, QC

(Canada)

August 2010 Spinal manipulation for low back pain: a brief review of responder subgroups

and potential mechanisms. Invited speaker at 2010 MDT Conference of the Americas, Striving for Clinical Excellence in an Era of Evidence Based Medicine, Mckenzie Institue (Americas Region), Baltimore, MD (USA)

March 2008 A physical therapist's perspective on manual therapy: clinical effectiveness and

selected mechanisms. Invited speaker at International Conference for

Delineating the Evidence Based for Somato-Visceral Interactions and Autonomic Mechanisms of Manual Therapy, Osteopathic Research Center and National

Institutes of Health, Fort Worth, TX (USA)

<u>International Presentations – Refereed Paper or Poster</u>

August 2010 Depressive symptoms influence musculoskeletal pain intensity more than

anatomical location for patients seeking outpatient physical therapy. Poster presentation at the World Congress on Pain, International Association for the

Study of Pain, Montreal, QC (Canada)

May 2002 Relationship between lumbar lordosis and radiological variables and lumbar

lordosis and clinical variables in older, African-American women. Poster presentation at the Annual Meeting, International Society for the Study of the

Lumbar Spine, Cleveland, OH (USA)

National Presentations – Keynote

October 2008 How does manual therapy inhibit pain? Keynote speaker at the 14<sup>th</sup> Annual

American Academy of Orthopaedic Manual Physical Therapists Conference

(Pain: from Science to Solution), Seattle, WA

National Presentations – Refereed Paper or Poster

February 2011 Psychometric analysis of the Tampa Scale for Kinesiophobia in patients with

ACL reconstruction. Platform presentation at Combined Sections Meeting,

Orthopaedic Section, American Physical Therapy Association, New Orleans, LA

February 2011 Investigation of fear-avoidance beliefs and clinical outcomes across multiple

anatomical locations. Platform presentation at Combined Sections Meeting,

Orthopaedic Section, American Physical Therapy Association, New Orleans, LA

February 2010 Patient satisfaction with behavioral physical therapy interventions: secondary

analysis from a randomized clinical trial (NCT00373867). Platform presentation at Combined Sections Meeting, Orthopaedic Section, American Physical Therapy

Association, San Diego, CA

May 2009	Psychometric properties of the fear of daily activities questionnaire (FDAQ) for patients with low back pain. Poster presentation at the Annual Scientific Meeting of the American Pain Society, San Diego, CA
February 2009	Psychosocial education improves low back pain beliefs: results from a cluster randomized clinical trial (NCT00373009). Platform presentation at Combined Sections Meeting, Orthopaedic Section, American Physical Therapy Association, Las Vegas, NV
October 2008	Immediate effects of neural mobilization on pain perception in individuals experiencing carpal tunnel syndrome: preliminary findings of a randomized trial. Paper presentation at the Annual Meeting for the American Society of Hand Therapists, Boston, MA
May 2008	Biopsychosocial influence on induced shoulder pain. Poster presentation at the Annual Scientific Meeting of the American Pain Society, Tampa, FL
February 2008	Behavioral interventions for sub-acute low back pain. Platform presentation at Combined Sections Meeting, Orthopaedic Section, American Physical Therapy Association, Nashville, TN
May 2007	Evidence for biospsychosocial factors' influence on shoulder pain. Poster presentation at the Annual Scientific Meeting of the American Pain Society, Washington, DC
February 2007	Elevated fear-avoidance beliefs for subjects participating in physical therapy clinical trials. Platform presentation at the Combined Sections Meeting, Orthopaedic Section, American Physical Therapy Association, Boston, MA
May 2006	Pain related fear influences pain, physical impairment, disability, and kinesiophobia following delayed onset muscle soreness at the shoulder. Paper presentation at the Annual Scientific Meeting of the American Pain Society, San Antonio, TX
February 2006	Immediate effect of spinal manipulation on temporal summation of pain. Platform presentation at the Combined Sections Meeting, Orthopaedic Section, American Physical Therapy Association, San Diego, CA
March 2005	Does experimental pain sensitivity contribute to reports of clinical pain intensity and disability? Poster presentation at the Annual Scientific Meeting of the American Pain Society, Boston, MA
March 2005	Psychological influence on central sensitization of pain for patients with chronic low back pain. Poster presentation at the Annual Scientific Meeting of the American Pain Society, Boston, MA
February 2005	Sex differences in response to physical therapy interventions for low back pain. Poster presentation at the Combined Sections Meeting, Orthopaedic Section, American Physical Therapy Association, New Orleans, LA

February 2004	Symptom centralization and fear-avoidance beliefs as prognostic factors for low back pain. Platform presentation at the Combined Sections Meeting, Orthopaedic Section, American Physical Therapy Association, Nashville, TN
October 2003	A preliminary investigation of patient-centered outcomes in patients with chronic pain. Paper presentation at the National Congress of Rehabilitation Medicine – American Society of Neurorehabilitation Joint Conference, Tucson, AZ
February 2003	The effect of a fear-avoidance based intervention for patients with acute low back pain, four week results from a randomized clinical trial. Platform presentation at the Combined Sections Meeting, Orthopaedic Section, American Physical Therapy Association, Tampa Bay, FL
February 2001	A comparison of fear avoidance beliefs in patients with lumbar spine pain and patients with cervical spine pain. Platform presentation at the Combined Sections Meeting, Orthopaedic Section, American Physical Therapy Association, San Antonio, TX
National Presentations	– Invited Seminar
April 2011	Comparison of graded exercise and graded exposure clinical outcomes for patients with chronic low back pain. Author in the Room Presentation, Evidence in Motion, Online continuing education format
February 2011	Vitalizing practice through research and research through practice. Educational programming at Combined Sections Meeting, Orthopaedic Section, American Physical Therapy Association, New Orleans, LA
February 2011	How to design RCT's: real world considerations. Educational programming at Combined Sections Meeting, Orthopaedic Section, American Physical Therapy Association, New Orleans, LA
February 2011	Enhancing clinical practice through psychosocial perspectives in the management of low back pain. Educational programming at Combined Sections Meeting, Orthopaedic Section, American Physical Therapy Association, New Orleans, LA
February 2010	Bridging science and clinical practice: you can be that scientist! Educational programming at Combined Sections Meeting, Section on Research, American Physical Therapy Association, San Diego, CA
February 2010	Factors that influence musculoskeletal pain: fatigue, sex, personality, psychology, and genetics. Educational programming at Combined Sections Meeting, Section on Research, American Physical Therapy Association, San Diego, CA
February 2009	The business of balancing research, service, and teaching: a program for junior faculty. Educational programming at Combined Sections Meeting, Section on research, American Physical Therapy Association, Las Vegas, NV
February 2009	Fear-avoidance behavior: state of art review. Educational programming at Combined Sections Meeting, Section on Education, American Physical Therapy Association, Las Vegas, NV

February 2009	Bridging the gapWhat to do when your student knows more about EBP than you do! Educational programming at Combined Sections Meeting, Section on Education, American Physical Therapy Association, Las Vegas, NV
October 2008	Individualized management of pain: current examples and future direction. Breakout session at the 14 <sup>th</sup> Annual American Academy of Orthopaedic Manual Physical Therapists Conference (Pain: from Science to Solution), Seattle, WA
October 2008	Psychological influence on musculoskeletal pain: a clinical update for the practicing manual therapist. Pre-conference workshop at the 14 <sup>th</sup> Annual American Academy of Orthopaedic Manual Physical Therapists Conference (Pain: from Science to Solution), Seattle, WA
October 2008	So the student asked about odds ratios (again): interpretation and application of evidence based practice for the practicing clinician. Pre-conference workshop at the 14 <sup>th</sup> Annual American Academy of Orthopaedic Manual Physical Therapists Conference (Pain: from Science to Solution), Seattle, WA
October 2008	An update on pain perception for the practicing clinician. Invited speaker at the Annual Meeting for the American Society of Hand Therapists, Boston, MA
September 2008	Screening for psychosocial factors: Issues for rehabilitation practitioners. Continuing education program via web. Expert Clinical Benchmarks, King of Prussia, PA
February 2008	Becoming a physical therapy researcher or so I finished my PhD what do I do? Educational programming at Combined Sections Meeting, Section on Research, American Physical Therapy Association, Nashville, TN
January 2008	Psychological influence on low back pain. Continuing education program via teleconference. Optum Health (United Health Group), Minneapolis, MN
July 2005	Psychological influence in acute low back pain: Identification and management of the patient with elevated fear-avoidance beliefs. Educational session at the University of Pittsburgh Medical Center, Pittsburgh, PA
March 2004	A clinical research update on a treatment based classification system. Research workshop and update for clinical staff of Westmoreland Regional Hospital, Greensburg, PA.
October 2002	Current management of the lumbar spine. Clinical research update for alumni, West Virginia University, School of Medicine, Division of Physical Therapy, Morgantown, WV
July 2000	Management of the patient with low back pain using a treatment-based classification approach. Presented to clinical faculty at Columbia University, New York, NY
Regional Presentations – Invited Seminar	

Regional Presentations – Invited Seminar
February 2011
Biopsychosocial influence on induced shoulder pain. Educational session at The 8<sup>th</sup> Annual Teton Hand and Extremity Conference, Jackson Hole, WY

February 2011	Effects of neural mobilization on pain perception in individuals experiencing carpal tunnel syndrome. Educational session at The 8 <sup>th</sup> Annual Teton Hand and Extremity Conference, Jackson Hole, WY
January 2011	Clinical update: psychological influence on pain perception in the upper extremity. Educational session at The 8 <sup>th</sup> Annual Teton Hand and Extremity Conference, Jackson Hole, WY
March 2009	An update on pain perception for the practicing clinician. Educational session at the Florida Physical Therapy Association Spring Conference, Orlando, FL
April 2007	Low back classification systems. Continuing education program at the Department of Athletic Training and Physical Therapy, University of North Florida, Jacksonville, FL
March 2005	Psychological influence in acute low back pain: identification and management of the patient with elevated fear-avoidance beliefs. Educational session at the Florida Physical Therapy Association Spring Conference, Orlando, FL
March 2001	Relationship between fear avoidance beliefs and spine pain. Graduate research seminar, West Virginia University, Department of Clinical Psychology, Morgantown, WV
Local Presentations – Invited Seminar	
January 2009	Psychosocial interventions for low back pain. Rehabilitation Research Seminar Series (supported by NIH T-32), University of Florida, Gainesville, FL
September 2007	Rehabilitation of the lumbar spine: An evidence-based multidisciplinary approach. Continuing education program from Shands Rehab Centers

January 2009	Psychosocial interventions for low back pain. Rehabilitation Research Seminar
	Series (supported by NIH T-32), University of Florida, Gainesville, FL
September 2007	Rehabilitation of the lumbar spine: An evidence-based multidisciplinary approach. Continuing education program from Shands Rehab Centers Conference Series, Gainesville, FL
September 2006	Biopsychosocial factors' influence on shoulder pain. Rehabilitation Research Seminar Series (supported by NIH T-32), University of Florida, Gainesville, FL
January 2006	Clinical Update on the management of low back pain. Continuing education program at the Department of Physical Therapy, University of Florida, Gainesville, FL
October 2005	Psychological influence in acute low back pain: Identification and management of the patient with elevated fear-avoidance beliefs. Educational session at the Shands Medical Center, Gainesville, FL
September 2005	Neuronal plasticity of pain: Response to rehabilitation interventions. Poster presentation at the Neuromuscular Plasticity Symposium, University of Florida, Gainesville, FL
May 2005	The influence of sex, personality, and coping style on the pain drawing. Poster presentation at 4th Annual Pain Research Day, Comprehensive Center for Pain Research, University of Florida, Gainesville, FL

October 2004	The influence of psychological factors on central sensitization for patients with

chronic low back pain. RORC-BRRC-Brooks Center Monthly Research Seminar

(No. 29). Gainesville, FL

June 2004 Evidence-based principles for the practicing clinician. Continuing education

workshop for clinical staff of Shands Rehabilitation Hospital, Gainesville, FL

April 2004 Anxiety and anxiety sensitivity during experimental pain response. Poster

presentation at 3rd Annual Pain Research Day, Comprehensive Center for Pain

Research, University of Florida, Gainesville, FL

April 2003 Sex differences in pain anchors – investigation of "most intense" pain events and

common pain events. Poster presentation at Pain Research Day, Comprehensive

Center for Pain Research, University of Florida, Gainesville, FL

March 2003 Future disability from work-related, acute low back pain: the influence of fear-

avoidance beliefs. Rehabilitation Research Seminar Series, University of Florida,

Gainesville, FL

December 1999 Introduction to a treatment-based classification system for acute, low back pain.

Presented to physical therapy students at Slippery Rock University, Slippery

Rock, PA

# **Teaching Experience**

## University of Florida

Course Coordinator (2005 - present)

Evidence Based Practice I (3 credits)

Evidence Based Practice III (2 credits)

Course Coordinator (2005 - 2010)

Evidence Based Practice II (3 credits)

Course Coordinator (2002 - 2006)

Development of a Case Study I (2 Credits)

Development of a Case Study II (2 Credits)

Scientific Basis of Physical Therapy Practice (2 Credits)

Lecturer (2002 - present)

Orthopedic Physical Therapy

Differential Diagnosis

## Arcadia University

Lecturer (2005)

Clinical Decision Making

## University of Pittsburgh

Course Coordinator (2002)

Introduction to an Evidence-Based Approach to the Rehabilitation Sciences (3 credits)

Lecturer (1997 - 2002)

Human Anatomy, Musculoskeletal PT I, Musculoskeletal PT II, Musculoskeletal PT III, and Evidence-Based Practice III

Teaching Assistant (1996 – 2001)

Human Anatomy, Musculoskeletal PT I, Musculoskeletal PT II, Musculoskeletal PT III, Evidence-Based Practice I, and Evidence-Based Practice II

Clinical Instructor (1996 – 2000)

Full and part-time clinical affiliations in acute medicine, inpatient orthopaedic, inpatient rehabilitation, and outpatient orthopaedic settings

# **Advisement**

**Training Grants** 

Title: Neurobiological Mechanisms of Body Based Interventions for Musculoskeletal

Pain (PI: Bishop MD)

Role: Collaborator Type: K01AR054331

Agency: National Institutes of Health

Participation: 2008 – present

Title: Rehabilitation Research Career Development Program (PI: Ottenbacher K)

Role: Lead Mentor Type: K12HD055929-01

Agency: National Institutes of Health

Participation: 2008 – present

Title: Integrative and Translational Training in Pain Research (PI: Yezierski RB)

Role: Program Faculty Type: 5T32NS045551

Agency: National Institutes of Health

Participation: 2006 – present

Title: Interdisciplinary Training in Rehabilitation and Neuromuscular Plasticity

(PI: Vandenborne K)

Role: Faculty Preceptor Type: T32HD043730

Agency: National Institutes of Health

Participation: 2005 – present

Completed Doctoral Committees: Chair

Student: Joel E. Bialosky (University of Florida, 2008)

Title: Mechanisms of Manual Therapy

College: Public Health and Health Professions (Rehabilitation Science)

## Primary Doctoral Mentor

Jason Beneciuk, Graduate Student, Rehabilitation Science, 2007 – current Carolina Valencia, Graduate Student, Rehabilitation Science, 2007 – current Rogelio Coronado, Graduate Student, Rehabilitation Science, 2009 – current

<u>Completed Doctoral Committees: Committee Member</u> Student: Anne N. Nisenzon (University of Florida, 2011)

Chair: Michael E. Robinson

Title: The role of anger in screening for prognostic risk factors and sub-grouping low back pain patients

College: Public Health and Health Professions (Clinical and Health Psychology)

Student: Jeffrey J. Parr (University of Florida, 2010)

Chair: Paul Borsa, PhD

Title: Predicting physical impairment and recovery following an exercise-induced shoulder injury

College: Health and Human Performance (Applied Physiology and Kinesiology)

Student: Bongsam Choi (University of Florida, 2010)

Chair: Craig A. Velozo, PhD

Title: The importance of precisely measuring disability for back pain College: Public Health and Health Professions (Rehabilitation Science)

Student: Lauren A. Stutts (University of Florida, 2009)

Chair: Michael Robinson, PhD

Title: Investigating patient and healthcare student characteristics on pain assessment using virtual patient

technology

College: Public Health and Health Professions (Clinical and Health Psychology)

Student: Erin M. O'Brien (University of Florida, 2008)

Chair: Michael Robinson, PhD

Title: Sleep disturbance in chronic pain patients

College: Public Health and Health Professions (Clinical and Health Psychology)

Student: Adam T. Hirsh (University of Florida, 2007)

Chair: Michael Robinson, PhD

Title: Investigating patient and provider influences on the assessment and treatment of pain: a novel

virtual patient technology application

College: Public Health and Health Professions (Clinical and Health Psychology)

Student: Geoffrey C. Dover (University of Florida, 2005)

Chair: Paul Borsa, PhD

Title: TENS treatment for pain relief and improved function following induced shoulder micro-injury

College: Health and Human Performance (Applied Physiology and Kinesiology)

Doctoral Committee Service Outside of University of Florida

Student: Luciola Da Cunha Menezes Costa (University of Syndey, 2011)

Supervisors: Chris Maher, James McAuley, Mark Hancock

Title: The course of low back pain and outcome measures for musculoskeletal condition

Role: Examiner

Student: Darren Calley (University of Maryland School of Medicine, 2009)

Supervisors: Roy Bechtel, Karen Gordes

Title: Screening for fear avoidance beliefs by physical therapists managing low back pain

Role: Final project mentor

Completed Undergraduate Honors Theses (Primary Faculty Mentor)

Student: Anthony Lauretta (University of Florida, 2008)

Title: Neural mobilization and its effects on elbow range of motion and sensory reporting:

a preliminary analysis

College: Public Health and Health Professions

Student: Kacie Smith (University of Florida, 2008)

Title: The influence of fear-avoidance specific variables on neural mobilization outcomes

College: Public Health and Health Professions

Student: Lauren A. Gates (University of Florida, 2007)

Title: Impact of psychological factors and instructional sets on pain expectations

College: Public Health and Health Professions

Student: Valdora L. Martelli (University of Florida, 2007)

Title: Relationship between cavitation and hypoalgesia after spinal manipulation therapy

College: Public Health and Health Professions

Student: Jessica S. Neff (University of Florida, 2007)

Title: COMT gene diplotypes self-report psychological questionnaires in two populations

College: Public Health and Health Professions

Student: Ryland J. Galmish (University of Florida, 2006)

Title: The effect of rumination on coping style, pain intensity, and pain tolerance

College: Public Health and Health Professions

## **Service**

2010

2004

2004

NIH Grant Review

2010	Special Emphasis Lanct Ellist Cliv 1112 1, Chimeal Thais 10 vie vi, 1 th hits
2010	Special Emphasis Panel ZAT1 LD (35) – Clinical Science, NCCAM
2009	Special Emphasis Panel ZAT1 LD (32 and 34) – Clinical Science, NCCAM
2009	Special Emphasis Panel ZAT1 PK (03 and 05) – Preclinical Science, NCCAM
2008	Special Emphasis Panel ZAT1 PK (02) – Preclinical Science, NCCAM
2008	Special Emphasis Panel ZRG1 CFS-E (01) – Chronic Fatigue and Pain, CSR
Other Grant Review	
2011	Invited external grant reviewer for University of Wisconsin-Milwaukee Research
	Growth Initiative
2010	Invited external grant reviewer for University of Wisconsin-Milwaukee Research
	Growth Initiative
2010	Invited external grant reviewer for Alberta Innovates – Health Solutions
	(formerly Alberta Heritage Foundation)
2009	Invited external grant reviewer for University of Wisconsin-Milwaukee Research
	Growth Initiative
2008	Invited external grant reviewer for Canadian Institutes of Health Research
2007-present	Invited external reviewer for grants submitted to Orthopaedic Section, American

Special Emphasis Panel ZAR1 CHW M2 1, Clinical Trials Review, NIAMS

Invited external grant reviewer for ZonMw (Netherlands Organisation for Health

Invited external grant reviewer for Arthritis Research Campaign project grant

Physical Therapy Association

Research and Development)

(UK)

Review for Scholarly Journals

Referee Phys Ther, J Orthop Sports Phys Ther, J Pain, Clin J Pain, Pain, Eur J Pain,

Pain Med, Arch Phys Med Rehabil, Arthritis Care Res, Behav Res Ther, Physiother Can, J Rehabil Res Dev, BMC Musculoskelet Disord, Physiother,

Physiother Theor Pract, and Journal of Musculoskeletal Medicine.

2006-2007 Invited reviewer for American Pain Society/American College of Physicians

Clinical Guidelines for the Management of Low Back Pain

Editorial Board for Scholarly Journals

2010-present Associate Editor (Rehabilitation Section), *Pain Med* 

2009-present Editorial Board Member, *Phys Ther* 

2007-present International Editorial Review Board, J Orthop Sports Phys Ther

Professional Activities and Service

Faculty member, Young Investigator's Initiative, United States Bone and Joint

Decade/Initiative

2011 Co-Chair, Psychosocial Special Interest Group, American Pain Society 2010 Panel Chair, Assessment Objectives for Physical Therapy Curriculum,

International Association for the Study of Pain

2010 Invited Participant, Roundtable on Psychosocial and Behavioral Therapies for

Musculoskeletal and Rheumatic Disease Outcomes, NIAMS/NIH

2009 – present Hooked on Evidence Advisory Board Member, American Physical Therapy

Association

2009 Member, Awards Committee, American Pain Society

2009 Abstract Review for Military Health Research Forum, Congressionally Directed

Medical Research Programs

2008-present Faculty Member, Musculoskeletal Pain & Analgesia, Faculty of 1000 Medicine 2008-2011 Member, Awards Committee, American Physical Therapy Association's Section

on Research

2008-2009 At Large Member, Nominating Committee, American Pain Society

2007-present Member, International Classification of Function (Low Back Workgroup),

Orthopaedic Section, American Physical Therapy Association

2003-present Abstract Reviewer for Combined Sections Meeting Submissions, Orthopedic

Section

2003-2006 Section on Research Accuracy Review, Hooked on Evidence Initiative, APTA 2003 Moderator, Research Platform Session A, Orthopedic Section, Combined

Sections Meeting, APTA

1996-1998 Admissions Committee Member, Department of Physical Therapy, University of

Pittsburgh

1995-2001 Medical Volunteer, UPMC – City of Pittsburgh Marathon 1992-1994 Class Secretary, Physical Therapy - Class of 1994, WVU

Tenure Review

2011 Marquette University, University of Utah

2010 University of Iowa

2010 Virginia Commonwealth University

2010 University of Colorado

**University Service** 

2011 Member, Search Committee for Orthopaedic & Rehabilitation Department Chair

2005 Presenter, Minority Association of Pre-Health Students (MAPS) 4<sup>th</sup> Annual

Research/Enrichment Forum

2004 – present Member, University of Florida Minority Mentor Program

College Service

2009 – present Member, Research Committee 2008 – 2009 Chair, Research Committee 2007 – 2009 Member, Grant Writing Works

2007 – 2009 Member, Grant Writing Workshop
 2007 Member, Shared Governance Committee
 2006 Member, Chair Evaluation Committee

2005 – present Reviewer, Research Opportunity Incentive Funds and Brooks Health Grants

2005 Member, PHHP Alumni of Year Committee

2004 Member, Search Committee for Rehabilitation Counseling Department Chair

Departmental Service

2010 – present Chair, Clinical Excellence Committee

2010 – present Chair, Rehabilitation Science Doctoral program Committee

2008 – 2009 Chair, Rehabilitation Science Task Force

2008 – 2010 Member, Rehabilitation Science Conference Task Force

2008 – 2010 Member, Dual Degree Task Force

2007 Member, Search Committee for Clinical Assistant Professor

2006 Chair, Academic Progression Committee

2005 – 2010 Member, Rehabilitation Science Doctoral program Committee

2005 – present Chair, Professionalism Committee
2004 – present Member, Alumni Relations Committee

**Community Service** 

2009 – present
 2005 – 2009
 2004 – 2007
 Volunteer, Stephen Foster Elementary (Gainesville, FL)
 Volunteer, W.W. Irby Elementary (Alachua, FL)
 Youth Sports Coach, YMCA of Gainesville

## **Professional Memberships**

2009-present Member, International Association for the Study of Pain

2005-present Member, American Pain Society

2002-present Member, Florida Physical Therapy Association

2000-present Member, Research Section, American Physical Therapy Association 1997-present Member, Orthopaedic Section, American Physical Therapy Association

1992-present Member, American Physical Therapy Association 1995-2002 Member, Pennsylvania Physical Therapy Association

#### **Consultation Outside the University**

#### Textbook Review

F.A. Davis Company (Philadelphia, PA)

Lippincott Williams & Wilkins

#### Medial Record Review

Wicker, Smith, O'Hara, McCoy, Graham & Ford, P.A. (West Palm Beach, FL)

Hunter, Williams & Lynch, P.A. (Coral Gables, FL)

Fowler, White, Boggs, Banker Attorneys at Law (Tampa, FL)

Wallace B. McCall Law Offices (Jupiter, FL)

Weekley, Schulte, Valdes Attorneys at Law (Tampa, FL) Leon & Berg, PA Attorneys at Law (Tampa, FL)

Health Care Advisement
Gerson Lehrman Group Council Member
Expert Clinical Benchmarks, LLC (King of Prussia, PA)