

**University of Pittsburgh  
School of Health and Rehabilitation Sciences  
Curriculum Vitae**



BIOGRAPHICAL

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Department of Physical Therapy  
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EDUCATION AND TRAINING

Undergraduate

1987 – 1992	University of Dayton Dayton, OH	BS, 1992	Mechanical Engineering
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Graduate

1992 – 1998	Ohio State University Columbus, OH	PhD, 1998	Biomedical Engineering
1997 – 1999	University of Pittsburgh Pittsburgh, PA	MPT, 1999	Physical Therapy

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APPOINTMENTS AND POSITIONS

Research Associate

1999 – 2000	University of Pittsburgh Pittsburgh, PA	Research Associate Physical Therapy and Otolaryngology
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Faculty - Primary Appointment

2000 – 2006	University of Pittsburgh	Assistant Professor, Dept. Physical Therapy
2006 – Present	University of Pittsburgh	Associate Professor, Dept. Physical Therapy
2020 – Present	University of Pittsburgh	Professor, Dept. Physical Therapy
2015 – Present	University of Pittsburgh	Co-Director, DPT-PhD in Bioengineering Program
2020 – Present	University of Pittsburgh	Vice Chair for Faculty Affairs, Dept. Physical Therapy

Faculty – Secondary Appointments

2006 – Present	University of Pittsburgh	Associate Professor, Dept. Otolaryngology
2006 – Present	University of Pittsburgh	Associate Professor, Dept. BioEngineering
2012 – Present	University of Pittsburgh	Associate Professor, Clinical and Translational Science Institute

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CERTIFICATION AND LICENSUREPhysical Therapy Licensure

Physical Therapist: PT012702L	Pennsylvania	Expires 12/31/2022
Direct Access PT: DAPT000606	Pennsylvania	Expires 12/31/2022

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MEMBERSHIPS IN PROFESSIONAL AND SCIENTIFIC SOCIETIES

American Society of Biomechanics	1994 – 2005
American Physical Therapy Association	1997 – Present
Member of Research and Academy of Neurologic PT Sections	
Association for Research in Otolaryngology	2000 – 2005
International Society of Posture and Gait Research	2006 – Present

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HONORS

Ohio State University Presidential Fellowship	1997
American Society of Biomechanics Schultz Travel Award	1997
Patricia J. Leahy Memorial Scholarship	1999
Institute for Clinical Research Education Mentoring Award	2012
Catherine Worthingham Fellow of the APTA	2021

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## PUBLICATIONS

### ORIGINAL PEER-REVIEWED ARTICLES

#### **MyBibliography:**

<http://www.ncbi.nlm.nih.gov/sites/myncbi/patrick.sparto.1/bibliography/40798528/public/?sort=date&direction=descending>

1. Sparto PJ, Parnianpour M, Khalaf KA, Simon SR (1995) The reliability and validity of a lift simulator and its functional equivalence with free weight lifting tasks. *IEEE Transactions on Rehabilitation Engineering*, 3(2):155-165.
2. Khalaf KA, Parnianpour M, Sparto PJ, Simon SR (1997) Modeling of functional trunk muscle performance: Interfacing ergonomics and spine rehabilitation in response to the ADA. *Journal of Rehabilitation Research and Development*, 34(4):459-469. PMID: 9323649.
3. Parnianpour M, Wang JL, Shirazi-Adl A, Sparto PJ, Wilke HJ (1997) The effect of variations in trunk models in predicting muscle strength and spinal loading. *Journal of Musculoskeletal Research*, 1(1):55-70.
4. Sparto PJ, Parnianpour M, Reinsel TE, Simon SR (1997) The effect of fatigue on multi-joint kinematics, coordination, and postural stability during a repetitive lifting test. *Journal of Orthopaedic and Sports Physical Therapy*, 25(1):3-12. PMID: 8979170.
5. Sparto PJ, Parnianpour M, Reinsel TE, Simon SR (1997) Spectral and temporal responses of trunk extensor EMG to an isometric endurance test. *Spine*, 22(4):418-425. PMID: 9055371.
6. Sparto PJ, Parnianpour M, Marras WS, Granata KP, Reinsel TE, Simon SR (1997) Neuromuscular trunk performance and spinal loading during a fatiguing isometric trunk extension with varying torque requirements. *Journal of Spinal Disorders*, 10(2):145-156. PMID: 9113613.
7. Sparto PJ, Parnianpour M, Reinsel TE, Simon SR (1997) The effect of fatigue on multi-joint kinematics and load sharing during a repetitive lifting test. *Spine*, 22(22):2647-2655. PMID: 9399451.
8. Bridger RS, Sparto PJ, Marras WS (1998) Spade design, lumbar motions, risk of low-back injury and digging posture. *Occupational Ergonomics*, 1(3):157-172.
9. Parnianpour M, Nordin M, Frankel VH, Sparto PJ (1998) The relationship between trunk strength, endurance, physical activity level, and pain following maximum isometric and dynamic fatiguing exertions. *Biomedical Engineering: Applications, Basis and Communications*, 10(1): 18-22.
10. Sparto PJ, Parnianpour M, Marras WS, Granata KP, Reinsel TE, Simon SR (1998) Effect of EMG-force relationships and method of gain estimation on the predictions of an EMG-driven model of spinal loading. *Spine*, 23(4):423-429. PMID: 9516696.
11. Sparto PJ, Parnianpour M (1998) Estimation of trunk muscle forces and spinal loads during fatiguing repetitive trunk exertions. *Spine*, 23(23):2563-2573. PMID: 9854755.

12. Sparto PJ, Parnianpour M, Reinsel TE, Simon SR (1998) The effect of lifting belt use on multi-joint motion and load bearing during repetitive and asymmetric lifting. *Journal of Spinal Disorders*, 11(1):57-64. PMID: 9493771.
13. Khalaf KA, Parnianpour M, Sparto PJ, Barin K, Simon SR (1999) Feature extraction and quantification of the variability of dynamic performance profiles due to the different sagittal lift characteristics. *IEEE Transactions of Rehabilitation Engineering*, 7(3):278-288. PMID: 10498374.
14. Khalaf KA, Parnianpour M, Sparto PJ, Barin K (1999) Determination of the effect of lift characteristics on dynamic performance profiles during manual material handling (MMH) tasks. *Ergonomics*, 42(1):126-145. PMID: 9973876.
15. Sparto PJ, Parnianpour M (1999) An electromyography-assisted model for estimation of trunk muscle forces during fatiguing repetitive trunk exertions. *Journal of Spinal Disorders*, 12(6):509-518. PMID: 10598994.
16. Sparto PJ, Parnianpour M, Barria EA, Jagadeesh JM (1999) Wavelet analysis of electromyography for back muscle fatigue detection during isokinetic constant-torque exertions. *Spine*, 24(17):1791-1798. PMID: 10488509.
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18. Sparto PJ, Parnianpour M, Barria EA, Jagadeesh JM (2000) Wavelet and Short-Time Fourier Transform analysis of electromyography for detection of back muscle fatigue. *IEEE Transactions on Rehabilitation Engineering*, 8(3):433-436. PMID: 11001525.
19. Wrisley DM, Sparto PJ, Whitney SL, Furman JM (2000) Cervicogenic dizziness. *Journal of Orthopaedic and Sports Physical Therapy*, 30(12):755-766. PMID: 11153554.
20. Sparto PJ, Parnianpour M (2001) Generalizability of trunk muscle EMG and spinal loading during dynamic trunk extension. *IEEE Engineering in Medicine and Biology*, 20(6):72-82. PMID: 11838261.
21. Sparto PJ, Redfern MS (2001) Quantification of direction and magnitude of cyclical postural sway using ellipses. *Biomedical Engineering: Applications, Basis, and Communications*, 13:213-217.
22. Whitney SL, Sparto PJ, Brown KE, Furman JM, Jacobson JL, Redfern MS (2002) The potential use of virtual reality in vestibular rehabilitation: Preliminary findings with the BNAVE. *Neurology Report*, 26:72-78.
23. Latt LD, Sparto PJ, Furman JM, Redfern MS (2003) The steady state postural response to continuous sinusoidal galvanic vestibular stimulation. *Gait and Posture*, 18:64-72. PMID: 14654209.
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- program for knee osteoarthritis: a case series. *Journal of Orthopaedic and Sports Physical Therapy*. 41:708-22. doi: 10.2519/jospt.2011.3633. PMID: 21891881, PMCID:PMC3383656.
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73. Alsalaheen BA, Whitney SL, Marchetti GF, Furman JM, Kontos AP, Collins MW, Sparto PJ (2016) Relationship between cognitive assessment and balance measures in adolescents referred for vestibular physical therapy after concussion. *Clinical Journal of Sports Medicine*. 26(1): 46-52. doi: 10.1097/JSM.000000000000185. PMID: 25706663. PMCID: PMC4856020.
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72. Sparto PJ, Aizenstein HJ, VanSwearingen JM, Rosano C, Redfern MS, Furman JM, Studenski SA (2007) Delays in voluntary step initiation are related to increased volume of white matter hyperintensities in older adults. *International Society for Posture and Gait Research*, July 2007, Burlington, VT
73. Whitney SL, Sparto PJ, Lacko JJ, Redfern MS, Furman JM (2008) Relationship between clinical measures and performance in a virtual grocery store environment in persons with vestibular dysfunction. *Association for Research in Otolaryngology Abstracts*, 31:246.
74. Sparto PJ, Aizenstein HJ, VanSwearingen JM, Rosano C, Perera S, Studenski SA, Jennings JR, Nebes RD, Furman JM, Redfern MS (2008) White matter hyperintensities in

localized motor tracts are associated with delays in step initiation during a choice reaction step task. *Second International Congress on Gait and Mental Function*, February 2008, Amsterdam, The Netherlands.

75. Whitney SL, Sparto PJ, Alahmari KA, Redfern MS, Furman JF (2008) The Use of a cave-like environment for the treatment of persons with vestibular disorders. *17<sup>th</sup> Congress of the International Society of Electrophysiology and Kinesiology*, June 2008, Niagara Falls, ON
76. Whitney SL, Sparto PJ, Alahmari KA, Redfern MS, Furman JM (2009) Vestibular Rehabilitation using a Virtual Grocery Store in Persons with Unilateral Vestibular Dysfunction. *Association for Research in Otolaryngology Abstracts*, 32:181.
77. Lacko JJ, Redfern MS, Furman JM, Sparto PJ (2008) Stepping tasks that require greater executive control induce multiple postural adjustments. *North American Congress on Biomechanics*, August 5-9, 2008, Ann Arbor, MI
78. Alghwiri A, Redfern MS, Furman JM, Sparto PJ (2009) People with vestibular dysfunction do not require increased attention for step initiation. *International Society for Posture and Gait Research*, June 2009, Bologna, Italy
79. Cenciarini M, Loughlin PJ, Sparto PJ, Redfern MS (2009) Active Stiffness and Damping Increase with Age in Postural Control. *International Society for Posture and Gait Research*, June 2009, Bologna, Italy
80. Gil AB, Sparto PJ, Chambers A, Cham R, Fitzgerald GK (2009) Relationship between physical function and stiffened pattern of movement during gait in patients with knee osteoarthritis. *International Society for Posture and Gait Research*, June 2009, Bologna, Italy
81. Pradhan S, Brewer B, Carvell G, Sparto P, Delitto A, Matsuoka Y (2009) Relation between ability to track force during dual tasking and function in individuals with Parkinson's disease. *2009 IEEE 11th International Conference on Rehabilitation Robotics*, June 2009, Kyoto, Japan
82. Beschorner K, McGowan R, Redfern M, Sparto P, Cham R (2009) Effect of Visual Perturbations and Dual Task on Treadmill Walking of Older and Younger Adults. *Annual Meeting of the American Society of Biomechanics*, August 2009, State College, PA
83. Cenciarini M, Loughlin PJ, Sparto PJ, Redfern MS (2009) Medial-Lateral Postural Control in Older Adults Exhibits Increased Stiffness and Damping. *31<sup>st</sup> Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, September 2009, Minneapolis, MN
84. Gil AB, Sparto PJ, Piva SR, Fitzgerald GK (2009) Stiffened Pattern of Movement is Associated with Worse Physical Function in People with Knee Osteoarthritis. *2009 World Congress on Osteoarthritis*, September 2009, Montreal, Canada
85. Gil AB, Sparto PJ, Piva SR, Fitzgerald GK (2009) The Influence of Hip Muscle Strength and Hip Frontal Plane Moment On the Knee Adduction Moment in People with Knee Osteoarthritis. *American College of Rheumatology Scientific Meeting*, October 2009, Philadelphia, PA

86. Josbeno DA, Jakicic J, Kalarchian M, Sparto PJ, Otto A (2010) The Relationship Between Physical Activity And Physical Function In Individuals Post-Bariatric Surgery. *2010 APTA Combined Sections Meeting*, San Diego, CA, February 2010.
87. Mohammad M, Sparto PJ, Whitney SL (2010) Subjective visual vertical after vestibular physical therapy intervention. *2010 APTA Combined Sections Meeting*, San Diego, CA, February 2010.
88. Alsalaheen B, Mucha A, Whitney SL, Furman JM, Camiolo-Reddy C, Collins M, Lovell M, Sparto PJ, (2010) Vestibular rehabilitation outcomes after concussion in children. *2010 APTA Combined Sections Meeting*, San Diego, CA, February 2010.
89. Alahmari K, Whitney SL, Sparto PJ, Redfern MS, Furman JM (2010) Vestibular rehabilitation for persons with vestibular disorders using a virtual reality grocery store as an intervention. *2010 APTA Combined Sections Meeting*, San Diego, CA, February 2010.
90. Mohammad MT, Whitney SL, Sparto PJ, Jennings JR, Furman JM (2010) Perceptual and motor inhibition in patients with vestibular disorders. *Association for Research in Otolaryngology Abstracts*, 33:.
91. Alsalaheen B, Whitney SL, Mucha A, Morris LO, Furman JM, Sparto PJ (2011) A framework for reporting vestibular rehabilitation exercise prescriptions and its application in the management of patients after concussion. *2011 APTA Combined Sections Meeting*, New Orleans, LA, February 2011.
92. Mohammad M, Whitney SL, Sparto PJ, Marchetti GF, Furman JM (2011) The effect of optotype parameters on the performance of healthy young subjects on the gaze stabilization test. *2011 APTA Combined Sections Meeting*, New Orleans, LA, February 2011.
93. Alghwiri AA, Whitney SL, Baker CE, Sparto PJ, Marchetti GF, Rogers JC, Furman JM (2011) The preliminary development of the Vestibular Activities and Participation (VAP) questionnaire using the Delphi technique. *2011 APTA Combined Sections Meeting*, New Orleans, LA, February 2011.
94. Alsalaheen B, Whitney SL, Sparto PJ (2012) Normative Data for Functional Balance and Gait Measures in Children Aged 14-18. *2012 APTA Combined Sections Meeting*, Chicago, IL, February 2012.
95. Alghwiri AA, Whitney SL, Baker CE, Sparto PJ, Marchetti GF, Rogers JC, Furman JM (2012) Reliability and Validity of the Vestibular Activities and Participation (VAP) Measure. *2012 APTA Combined Sections Meeting*, Chicago, IL, February 2012.
96. Sparto PJ, Newman AB, Simonsick EM, Caserotti P, Strotmeyer ES, Harris TB, Kritchevsky S, Yaffe K, Ferrucci L, Rosano C (2012) Contributors to Lateral Postural Control during a COP Displacement Tracking Task in the Very Old. *International Society for Posture and Gait Research*, June 2012, Trondheim, Norway
97. Sparto PJ, Fuhrman SI, Perera S, Jennings JR, Nebes RD, Redfern MS, Furman JM (2012) Lack of inhibitory control induces errors in step initiation in older adults. *International Society for Posture and Gait Research*, June 2012, Trondheim, Norway

98. Morgan MT, Friscia L, Whitney SL, Furman JM, Sparto PJ, (2012) Psychometric Properties of the Falls Efficacy Scale-International (FES-I) in Patients with Dizziness and Imbalance. *27<sup>th</sup> Barany Society Meeting*, June 2012, Sweden
99. Huang K, Sparto PJ, Kiesler S, Siewiorek D, Smailagic A (2012) iPod for Home Balance Rehabilitation Exercise Monitoring, *Wearable Computers (ISWC), 2012 16th International Symposium*, pp.116-117, June 2012, doi: 10.1109/ISWC.2012.30
100. Alsalaheen B, Whitney SL, Marchetti GF, Furman JM, Kontos AP, Collins MW, Sparto PJ (2013) Relationship between neurocognitive assessment and balance measures at the initiation of vestibular physical therapy after mild traumatic brain injury. *2013 APTA Combined Sections Meeting*, San Diego, CA, January 2013.
101. Lin C-C, Whitney SL, Sparto PJ, Furman JM, Loughlin PJ, Redfern MS, Marchetti GF, Sienko K (2013) The effects of vibrotactile feedback on reaction times during dual-task balance performance in different age groups. *2013 APTA Combined Sections Meeting*, San Diego, CA, January 2013.
102. Lin C-C, Sparto PJ, Furman JM, Loughlin PJ, Redfern MS, Sienko K, Whitney SL (2014) The Effect of Vibrotactile Feedback on Postural Sway under Dual-task Conditions in People with Unilateral Vestibular Hypofunction. *2014 APTA Combined Sections Meeting*, Las Vegas, NV, February 2014.
103. Alkathiry AA, Sparto PJ, Freund B, Whitney SL, Mucha AM, Furman JM, Kontos A (2014) Using Accelerometers to Measure Postural Sway in Children with Concussion. *2014 APTA Combined Sections Meeting*, Las Vegas, NV, February 2014.
104. Alsubaie SF, McClain NT, Loughlin PJ, Whitney SL, Furman JM, Sparto PJ (2014) The effect of the using Vibrotactile Feedback (VTF) on medial-lateral postural sway in individuals with bilateral vestibular loss. *2014 APTA Combined Sections Meeting*, Las Vegas, NV, February 2014.
105. Sombric CJ, Harker HM, Sparto PJ, Torres-Oviedo G. (2014) You only get better with age: age predisposes one to learn new movements slower but to carryover what is learned more to novel situations. *Society for Neuroscience Annual Meeting*, Washington DC, November 2014.
106. Harker HM, Sombric CJ, Sparto PJ, Torres-Oviedo G. (2014) Large movement errors during split-belt locomotor adaptation do not affect the generalization of learning to natural walking in older adults. *Society for Neuroscience Annual Meeting*, Washington DC, November 2014.
107. Huang K, Sparto PJ, Kiesler S, Smailagic A, Mankoff J, Siewiorek D (2014) A Technology Probe of Wearable In-Home Computer-Assisted Physical Therapy, *CHI'14: Proceedings of the 2014 CHI Conference on Human Factors in Computing Systems*, April 2014, Toronto, ON, CA
108. Sparto PJ, Jennings JR, Redfern MS, Furman JM (2014) Decline in lateral step initiation in older adults: a longitudinal study. *International Society for Posture and Gait Research*, July 2014, Vancouver, Canada

109. Alshehri MM, Sparto PJ, Mucha AM, Furman JM, Whitney SL (2015) The vestibular Head Impulse Test (vHIT) in persons with balance impairment. *2015 APTA Combined Sections Meeting*, Indianapolis, IN, February 2015.
110. Alkathiry AA, Sparto PJ, Mucha AM, Whitney SL (2015) Learning difficulties in concussed children. *2015 APTA Combined Sections Meeting*, Indianapolis, IN, February 2015.
111. Alqahtani BA, Sparto PJ, Ferchak MA, Greenspan SL, Huppert TJ, Sejdic E (2015) Balance Accelerometry in Residents of Long Term Care Facilities. *2015 APTA Combined Sections Meeting*, Indianapolis, IN, February 2015.
112. Lin CC, Sparto PJ, Furman JM, Huppert TJ (2015) Functional near-infrared spectroscopy neuroimaging of sensory integration during balance in older adults. *2015 APTA Combined Sections Meeting*, Indianapolis, IN, February 2015.
113. Asiri FY, Sparto PJ, Marchetti GF, Whitney SL (2015) Gait and functional improvements in older people with heart failure receiving home based rehabilitation. *2015 APTA Combined Sections Meeting*, Indianapolis, IN, February 2015.
114. AlMohiza M, Sparto PJ, Marchetti GF, Furman JM, Delitto A, Whitney SL (2015) Balance and Vestibular Rehabilitation Quality Improvement. *2015 APTA Combined Sections Meeting*, Indianapolis, IN, February 2015.
115. Sparto PJ, Karim H, Furman JM, Redfern MS, Jennings JR, Huppert TJ (2015) fNIRS Imaging Of Step Initiation In Older Adults. *International Society for Posture and Gait Research*, June 2015, Seville, Spain
116. Lin CC, Sparto PJ, Furman JM, Huppert TJ (2015) Functional Brain Imaging of Multisensory Integration during Computerized Dynamic Posturography in Older Adults Using Functional Near-infrared Spectroscopy (fNIRS). *International Society for Posture and Gait Research*, June 2015, Seville, Spain
117. Weston E, Sparto P, Furman J, Drexler S, Redfern M, Beschoner K (2015) Effects Of Ergonomic Factors On Stair Navigation In Elderly Multifocal Lens Glasses Wearers. *Annual Meeting of the American Society of Biomechanics*, August 2015, Columbus, OH
118. Alkathiry A, Sparto PJ, Whitney SL, Furman JM, Kontos AP (2016) Single vs Dual-Task Balancing Paradigm in Adolescents with Sport Related Concussion. *2016 APTA Combined Sections Meeting*, Anaheim, CA, February 2016.
119. Alsubaie SF, Fear D, Sienko KH, Marchetti GF, Whitney SL, Furman JM, Sparto PJ (2016) Validating Ratings of Perceived Difficulty for Balance Exercises. *2016 APTA Combined Sections Meeting*, Anaheim, CA, February 2016.
120. Alshebber K, Sparto PJ, Marchetti GF, Staab JP, Furman JM, Whitney SL (2016) The Development and Validation of the Vestibular Activities Avoidance Measure for People With Vestibular and Balance Disorders. *2016 APTA Combined Sections Meeting*, Anaheim, CA, February 2016.

121. Klatt B, Terhorst L, Sparto PJ, Winser SJ, Heyman R, Zaydan I, Whitney SL (2016) Relationship Between Subjective Visual Vertical and Balance in Individuals with Multiple Sclerosis. *2016 APTA Combined Sections Meeting*, Anaheim, CA, February 2016.
122. Almarwani M, VanSwearingen J, Perera S, Sparto PJ, Brach J (2017) The Effect of Rhythmic Auditory Cueing on the Spatial and Temporal Gait Coordination at Different Walking Speeds in Healthy Adults. *2017 APTA Combined Sections Meeting*, San Antonio, TX, February 2017.
123. Almarwani M, VanSwearingen J, Perera S, Sparto PJ, Brach J (2017) The Effect of Rhythmic Auditory Cueing on the Spatial and Temporal Gait Coordination at Different Walking Speeds in Healthy Adults. *2017 APTA Combined Sections Meeting*, San Antonio, TX, February 2017.
124. Alkathiry AA, Kontos AP, Whitney SL, Furman JM, Sparto PJ (2017) Dual-Task Balance Testing In Adolescents With And Without Sports-Related Concussion. *International Society for Posture and Gait Research*, June 2017, Ft. Lauderdale, FL
125. Alqahtani BA, Sparto PJ, Whitney SL, Greenspan SL, Perera S, Brach JS (2017) Psychometric properties of balance and strength measurements in independent living older adults using portable technologies. *International Society for Posture and Gait Research*, June 2017, Ft. Lauderdale, FL
126. Lin CC, Williams B, MacCreery A, Huppert T, Sparto PJ (2017) The effect of changing visual information on brain activity during sensory integration in young adults- a functional NIRS study. *International Society for Posture and Gait Research*, June 2017, Ft. Lauderdale, FL
127. DiSalvio NL, Aizenstein HJ, Rosano C, Perera S, Redfern MS, Furman JM, Jennings JR, Whitney SL, Sparto PJ (2017) Relationship between structural neuroimaging measures and performance on functional mobility measures in community-dwelling older adults. *International Society for Posture and Gait Research*, June 2017, Ft. Lauderdale, FL
128. Alsubaie SF, Marchetti GF, Whitney SL, Sienko KH, Furman JM, Sparto PJ (2017) Validation of rating of perceived difficulty scales for balance exercises using postural sway measures. *International Society for Posture and Gait Research*, June 2017, Ft. Lauderdale, FL
129. Hoppes CW, Sparto PJ, Whitney SL, Furman JM, Huppert TJ (2018) Use of near-infrared spectroscopy to examine cerebral activation during optic flow in individuals with and without complaints of visual vertigo. *2018 APTA Combined Sections Meeting*, New Orleans, LA, February 2018.
130. Blanton CJ, Lin C-C, Hudson R, Huppert T, Sparto PJ (2018) The effect of aging on brain activity during different visual sensory integration balance conditions- a functional Near-Infrared Spectrometry study. *2018 APTA Combined Sections Meeting*, New Orleans, LA, February 2018.
131. Hudson R, Lin C-C, Blanton CJ, Huppert T, Sparto PJ (2018) The effect of aging on brain activity during different visual sensory integration balance conditions- a functional Near-



- Infrared Spectrometry study. *2018 APTA Combined Sections Meeting*, New Orleans, LA, February 2018.
132. Anson ER, Sparto PJ, Agarwal Y (2018) Perceived stability across conditions of the modified clinical test of sensory integration for balance differs based on history of falling. *2018 APTA Combined Sections Meeting*, New Orleans, LA, February 2018.
133. Dunlap PM, Mucha A, Smithnosky D, Whitney SL, Furman JM, Collins M, Kontos AP, Sparto PJ (2018) The gaze stabilization test following concussion. *2018 APTA Combined Sections Meeting*, New Orleans, LA, February 2018.
134. Alshebber KM, Sparto PJ, Marchetti GF, Staab J, Furman JM, Whitney SL (2018) Internal validation of the vestibular avoidance instrument (VAAI). *2018 APTA Combined Sections Meeting*, New Orleans, LA, February 2018.
135. Abdulaziz SS, Landgraff N, Marchetti GF, Skidmore E, Sparto PJ, Whitney SL (2018) The Lawton Scale as a predictor of discharge destination in patients with stroke undergoing rehabilitation. *2018 APTA Combined Sections Meeting*, New Orleans, LA, February 2018.
136. Bailes AH, Bohse P, Iverson JM, Trout J, Sparto PJ, Cham R (2019) Impact of an information processing task on balance in young adults with autism, a preliminary study. *2019 APTA Combined Sections Meeting*, Washington, DC, January 2019.
137. Alrwaily M, Sparto PJ, Whitney SL (2019) Perception of Visual Verticality is Altered in People With Severe Chronic Low Back Pain: A Cross-Sectional Study. *2019 APTA Combined Sections Meeting*, Washington, DC, January 2019.
138. Kontos AP, Monti K, Thomasma E, Holland C, Thomas D, Mucha A, Sparto P, Whitney S, Marchetti G, Furman J, Collins MW (2019, May). Emerging evidence for the Vestibular Ocular Motor Screening tool in Special Operations Forces personnel. *Special Operations Medical Association Scientific Assembly*. Charlotte, NC, May 2019
139. Sparto PJ, Huppert TJ, Karim HT, Furman JM (2019) Functional near-infrared imaging of the temporo-parietal junction during vestibular rotational stimulation. *International Society for Posture and Gait Research*, July 2019, Edinburgh, Scotland
140. Dunlap PM, Sparto PJ, Furman JM, Marchetti GF, Staab JP, Delitto A, Whitney SL (2020). The Effects Of Anxiety And Depression On Function In Persons With Vestibular Disorders. *2020 APTA Combined Sections Meeting*, Denver, CO, February 2020.
141. Alshebber K, Hoppes CW, Dunlap PM, Klatt BN, Rosso, A, Sparto PJ, Furman JM, Huppert T, Whitney SL (2020). Fear-Avoidance And Lifespace In Individuals With And Without Visual Vertigo. *2020 APTA Combined Sections Meeting*, Denver, CO, February 2020.
142. Bailes A, Zuris E, Sparto PJ, Smith W, Eller A, Redfern MS, Baker N, Sahel J-A, Cham R (2020). Impact Of Lighting On Obstacle Navigation In Individuals With Macular Dystrophy. *2020 APTA Combined Sections Meeting*, Denver, CO, February 2020.
143. Sparto PJ, Souvignier AR, Fitzpatrick CJ, Collins MW, Furman JM, Mucha A, Patterson CG, Whitney SL, Eagle SR, Arango JI, Pearson CA, Gatson JW, Kontos AP (2020). A Randomized Controlled Trial of Precision Vestibular Rehabilitation after mTBI in Military

Personnel – Study Design. 2020 Military Health System Research Symposium (MHSRS). Orlando, FL, August 2020.

144. Dunlap PM, Sparto PJ, Irrgang JJ, Marchetti GF, Furman JM, Staab JP, Delitto A, Whitney SL (2021). Patient-Reported Outcome Measures Among Persons With Dizziness: What Level Of Impairment Is Acceptable. *2021 APTA Combined Sections Meeting*, Virtual, February 2021.
145. Costa C, Dunlap PM, Hoppes CW, Klatt BN, Sparto PJ, Furman JM, Whitney SL (2021). Is Life Space Related To Self-Perceived Handicap Among Patients With Visual Vertigo? A Cross-Sectional Study. *2021 APTA Combined Sections Meeting*, Virtual, February 2021.
146. Sparto PJ, Souvignier AR, Fitzpatrick CJ, Collins MW, Furman JM, Mucha A, Patterson CG, Whitney SL, Eagle SR, Arango JI, Pearson CA, Gatson JW, Kontos AP (2020) A Randomized Controlled Trial of Precision Vestibular Rehabilitation after mTBI in Military Personnel – Study Design. 2020 Military Health System Research Symposium (MHSRS). Orlando, FL, August 2020.
147. Kontos AP, Souvignier AR, Fitzpatrick CJ, Smith CN, Collins MW, Furman JM, Mucha A, Patterson CG, Whitney SL, Eagle SR, Vander Vegt CB, Bitzer HB, Pearson CA, Beaver DM, Wood NI, Franco T, Sparto PJ (2021) Compliance with prescribed vestibular rehabilitation following mTBI in military personnel and civilians: Results from text-based monitoring. Invited lecture presented at the Defense Intrepid Network Research Symposium, Bethesda, MD (virtual).
148. Sparto PJ, Souvignier AR, Fitzpatrick CJ, Smith CN, Collins MW, Furman JM, Mucha A, Patterson CG, Whitney SL, Eagle SR, Vander Vegt CB, Bitzer HB, Pearson CA, Kontos AP (2021) Dizziness handicap and vestibular impairments in military personnel and civilians with mTBI. Military Health System Research Symposium. Orlando, FL. <https://mhsrs.amedd.army.mil/SitePages/Home.aspx> Accepted for poster. Cancelled due to COVID-19.
149. Kontos AP, Souvignier AR, Fitzpatrick CJ, Smith CN, Collins MW, Furman JM, Mucha A, Patterson CG, Whitney SL, Eagle SR, Vander Vegt CB, Bitzer HB, Pearson CA, Beaver DM, Wood NI, Franco T, Sparto PJ (2021). Compliance with prescribed vestibular rehabilitation following mTBI in military personnel and civilians: Results from text-based monitoring. Military Health System Research Symposium. Orlando, FL. <https://mhsrs.amedd.army.mil/SitePages/Home.aspx> Accepted for podium presentation. Cancelled due to COVID-19.
150. Dunlap PM, AlRadady FA, Sparto PJ, Furman JM, Staab JP, Marchetti GF, Delitto A, Chueh J, Whitney SL (2022) The Reliability and Validity of the Nine Item Vestibular Activities Avoidance Instrument. *2022 APTA Combined Sections Meeting*, San Antonio, TX, February 2022.
151. Costa CM, Dunlap PM, Hoppes CW, Klatt BN, Sparto PJ, Furman JM, Whitney SL (2022) The Association of Visual Vertigo with Function, Quality of Life and Perceived Change in Health. *2022 Barany Society Meeting*, Madrid, May 2022.

152. Dunlap PM, Sparto PJ, Marchetti GF, Furman JM, Staab JP, Delitto A, Whitney SL (2022) The Predictive Validity of the 9-Item Vestibular Activities Avoidance Instrument. *2022 Barany Society Meeting*, Madrid, May 2022.
153. Sinnott AM, Eagle SR, Kochick V, Collins MW, Trbovich AM, Sparto PJ, Flanagan SR, Elbin RJ, Connaboy C, Kontos AP (2022) Autonomic Nervous System Function After Dynamic Exertion Among Athletes at Medical Clearance Following Concussion. *American College of Sports Medicine Annual Meeting*, May 31-June 4, 2022.
154. Kontos AP, Souvignier AR, Fitzpatrick CJ, Smith CN, Collins MW, Furman JM, Mucha A, Patterson CG, Whitney SL, Fucci KA, Bobula SA, Hershaw JN, Bitzer HB, Pearson CA, Wood NI, Sparto PJ (2022, April). Behavioral, sleep, and medical history predictors of vestibular symptoms and impairment in military personnel and civilians following mTBI: A T-REV clinical trial study. Podium presentation at the 12th Annual Naval Medical Center Camp Lejeune Research Symposium, Camp Lejeune, NC
155. Sparto PJ, Souvignier AR, Fitzpatrick CJ, Smith CN, Collins MW, Furman JM, Mucha A, Patterson CG, Whitney SL, Eagle SR, Hershaw JN, Bitzer HB, Pearson CA, Wood NI, Fucci KA, Bobula SA, Kontos AP (2022, April). Vestibular Rehabilitation Exercise Compliance using Text Message-Based Surveys following mTBI in Military Personnel and Civilians: A T-REV clinical trial study. Poster presentation at the 12th Annual Naval Medical Center Camp Lejeune Research Symposium, Camp Lejeune, NC.
156. Sparto PJ, Souvignier AR, Fitzpatrick CJ, Smith CN, Collins MW, Furman JM, Mucha A, Patterson CG, Whitney SL, Eagle SR, Hershaw JN, Bitzer HB, Pearson CA, Wood NI, Fucci KA, Bobula SA, Kontos AP (2022, September). Vestibular Rehabilitation Exercise Compliance using Text Message-Based Surveys following mTBI in Military Personnel and Civilians: A T-REV clinical trial study. Podium presentation at 2022 Military Health System Research Symposium, Orlando, FL.
157. Kontos AP, Souvignier AR, Fitzpatrick CJ, Smith CN, Collins MW, Furman JM, Mucha A, Patterson CG, Whitney SL, Fucci KA, Bobula SA, Hershaw JN, Bitzer HB, Pearson CA, Wood NI, Sparto PJ (2022, April). Behavioral, sleep, and medical history predictors of vestibular symptoms and impairment in military personnel and civilians following mTBI: A T-REV clinical trial study. Poster presentation at 2022 Military Health System Research Symposium, Orlando, FL.
158. Wolff LA, Fucci KA, Wood NI, Pearson CA, Hentig JT, Hershaw JN, Fitzpatrick CJ, Smith CN, Collins MW, Furman JM, Mucha A, Patterson CG, Whitney SL, Eagle SR, Bitzer HB, Bobula SA, Souvignier AR, Sparto PJ, Kontos AP (2022, September). Association among patient-reported and performance-based assessment of vestibular symptoms and function following mTBI: A T-REV clinical trial study. Podium presentation at the Military Health System Research Symposium, Kissimmee, FL.
159. Wood NI, Fucci KA, Pearson CA, Hentig JT, Hershaw JN, Fitzpatrick CJ, Smith CN, Collins MW, Furman JM, Mucha A, Patterson CG, Whitney SL, Eagle SR, Bitzer HB, Souvignier AR, Kontos AP, Sparto PJ (2022, September). Association among patient-reported and performance-based assessment of vestibular symptoms and function following mTBI: A T-REV clinical trial study. Podium presentation at the Military Health System Research Symposium, Kissimmee, FL

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PROFESSIONAL ACTIVITIES

TEACHINGPrimary instruction

<b>Course Number</b>	<b>Title</b>	<b>Years</b>	<b>Students</b>	<b>Responsibilities</b>
HRS1022	Human Anatomy	2000	26 BSOT 6 MOT	30 lectures, lab instructor, 90 contact hours
PT2025	Physiology of Exercise (2 cr.)	2001- 2022	32-69 MPT/DPT	Develop course materials, course coordinator, 9 lectures, 27 contact hours each year Develop questions for cardiopulmonary sequence of comprehensive exam
PT2035	Clinical Biomechanics (3 cr.)	2015- 2018	56 – 64 DPT	Course Coordinator Revise course materials 2 lectures, lab preceptor, recitation
HRS3003-3005	Core Concepts in Disability I and II  (2 courses, 1 cr. each)	2015- 2016	5 PhD	Preceptor, 1 lecture
		2016- 2017	9 PhD	Co-Instructor, lectures, lead discussion, grading of assignments
		2017- 2018	6 PhD	Co-Instructor, lectures, lead discussion, grading of assignments
		2018- 2019	7 PhD	Course Coordinator, revise course content, lectures, lead discussion, grading of assignments
		2019- 2020	12 PhD	Co-Instructor, review and revise content, present 1 lecture

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**Additional instruction (School of Health and Rehabilitation Sciences)**

<b>Course Number</b>	<b>Title</b>	<b>Years</b>	<b>Students</b>	<b>Responsibilities</b>
HRS1022	Human Anatomy	1999	25 BSOT	3 lectures, lab instructor, 90 contact hrs
HRS1225	Intro to Rehab Science	2004	40 BSRS	Lecture, "Introduction to balance rehabilitation"
HRS1295	Undergraduate Field Experience	2007 - 2019	7 BSRS	Evaluating faculty member for students supervised field experiences. Help students to develop objectives, read and provide feedback on daily journals and final paper
HRS2312	Master of Science Physical Therapy	2007	4 MSPT	Lecture, "White matter disease and postural control"
		2008	3 MSPT	
		2011-2022	10-20 MSPT	Lectures, "Vestibular Lab Testing", "Aging and Neuroimaging of Balance"
HRS2373	Advanced Clinical Practice	2006	9 MS	Lecture "Vestibular disorders in outpatient setting"
		2007	12 MS	
		2008	30 MS	
		2009	50 MS	
		2010	76 MS	
HRS2999	Independent study	2005	1 PhD	Biomechanics
		2006	1 PhD	
		2008	4 PhD	Vestibular Rehabilitation
		2013	2 PhD	Postural Control
		2014	1 PhD	Postural Control
		2015	3 PhD	Postural Control
HRS3000	Doctoral Seminar	2016	1 DPT	Vestibular impairments after concussion
		2013-2018	2-8 PhD	Journal Club
		2017-2022	6-21 PhD	1 lecture each term on Responsible Conduct of Research

**Additional instruction (Department of Physical Therapy)**

<b>Course Number</b>	<b>Title</b>	<b>Years</b>	<b>Students</b>	<b>Responsibilities</b>
PT2031	Musculoskeletal PT I	1999	44 MPT	Lab instructor
PT2033	Musculoskeletal PT III	1999	44 MPT	1 lecture, "Lumbar spine biomechanics"
		2006-2021	44-62 DPT	Developed and lectured 2-week Ergonomics module
PT2062	Neuromuscular Physical Therapy II	2021-2022	58-64 DPT	Lab instructor for Vestibular Physical Therapy Module  Lecture - Vestibular Laboratory Testing
PT2063	Neuromuscular Physical Therapy III	2005-2010-2020	32 DPT 50-60 DPT	Lab instructor for Vestibular Physical Therapy Module
		2013-2020	54-65 DPT	Lecture - Vestibular Laboratory Testing
PT2064	Clinical Electrophysiology	1999-2005	32-44 MPT/DPT	Lab instructor, 20 contact hours
PT2072 – PT2078	Evidence-based Practice curriculum	2010-2022	3-4 DPT	Review and grade Performance Improvement projects  Advise students in Vestibular and Concussion clinics on Outcome measures  Revise SPSS Syntax for Performance Improvement Paper projects Co-leader with Lynn Worobey Develop Canvas Site and lead Pitt component
PT 2556	Interfacing Engineering Technology and Rehabilitation	2021-2023	6 DPT and PhD	
Youngstown State Univ.	Vestibular Rehabilitation	2004-2018	8-24 MPT/DPT	2 lectures, lab instructor

**Curriculum development**

1. 2001: Developed PT2025: Physiology of Exercise
2. 2012: Revised PT2025: Physiology of Exercise after external review
3. Member of the Department of Physical Therapy Entry-level Comprehensive examination committee, Cardiopulmonary section
4. 2006: Developed 3-4 week Ergonomics Module with Musculoskeletal III course
5. 2015-2018: Revision of Clinical Biomechanics course and integration in Musculoskeletal PT sequence
6. 2016: Review of Musculoskeletal PT Curriculum
7. 2019: Review of SHRS PhD course sequence HRS 3003 and HRS 3005: Core Concepts in Disability and Rehabilitation Science

8. 2020: PT 2025 revision for remote instruction due to SARS-CoV2 pandemic
9. 2021: PT 2025 course build for hybrid program

### **New Academic Program Development**

#### **Founding and Co-Director**

#### **Doctor of Physical Therapy – PhD in Bioengineering Program (Dual-degree)**

Since 2012, I have led the development of the Doctor of Physical Therapy – PhD in Bioengineering Program offering at the University of Pittsburgh. The Co-director is Patrick Loughlin, Professor of Bioengineering

#### **Milestones:**

- 2012: First meeting between Physical Therapy and Bioengineering  
 2012-2014: Program development and proposal writing for school and university approval  
 2014: University approval  
 2015: Enrollment of first class of 2 students  
 2016-2022: Enrollment of 1-2 new students per year, 8 students have enrolled, 1 student has completed program

### **University of Pittsburgh Continuing Education Courses**

Since 2009, I have Co-Directed (with Susan Whitney and Joseph Furman) a nationally-attended continuing education course called Vestibular Rehabilitation: An Advanced Course and Update. The attendance has ranged from 30 to 120 participants, primarily physical therapists, followed by physicians and audiologists. My responsibilities include course planning, speaker invitations, handout preparation, and contributing 2-4 lectures.

#### **Lectures**

1. 2007-2009: Vestibular Rehabilitation: An Advanced Course and Update, (Pittsburgh, PA) - "White matter disease and postural control"
2. 2010-2019: Vestibular Rehabilitation: An Advanced Course and Update, (Pittsburgh, PA) - "Vestibular Assessment Practicum"
3. 2010: Vestibular Rehabilitation: An Advanced Course and Update, (Pittsburgh, PA) - "Quantitative measurement of Posture and Gait"
4. 2010-2016: Vestibular Rehabilitation: An Advanced Course and Update, (Pittsburgh, PA) - "Dysequilibrium of Aging"
5. 2012-2013: Vestibular Rehabilitation: An Advanced Course and Update, (Pittsburgh, PA) - "Postural Control and Attention in Older Adults and Persons with Vestibular Disorders" (5/18/2012)
6. 2015-2022: Vestibular Rehabilitation: An Advanced Course and Update, (Pittsburgh, PA) - "Mobility and Aging"
7. 2015-2017: Vestibular Rehabilitation: An Advanced Course and Update, (Pittsburgh, PA) - "Compensation and Functional Recovery of the VOR" (5/15/2015)
8. 2018-2019: Vestibular Rehabilitation: An Advanced Course and Update, (Pittsburgh, PA) - "Vestibular and Balance Impairments after Concussion"
9. 2018-2019: Vestibular Rehabilitation: An Advanced Course and Update, (Pittsburgh, PA) - "Barriers to Compensation"

### **University of Pittsburgh Education Seminars**

1. Physical Therapy Clinical Grand Rounds – "Introduction to acute care" (06/28/1999)
2. SHRS Doctoral Seminar – "Neuromuscular function testing in people with suspected lumbar instability" (04/05/2000)

3. Physical Therapy Clinical Grand Rounds – “Treatment of lumbar spinal instability in a patient with poor cardiac function” (10/23/2000)
4. SHRS Doctoral Seminar – “Generalizability Theory” (03/14/2001)
5. Physical Therapy Clinical Grand Rounds – “Dizziness in a young female after a motor vehicle accident” (06/04/2004)
6. Vestibular Seminar, Department of Communication Science and Disorders - “Visual influences on balance” (7/14/2004)
7. Physical Therapy Grand Rounds – “Dizziness and balance dysfunction secondary to bilateral vestibular dysfunction” (04/06/2006)
8. Physical Therapy Grand Rounds – “Vestibular rehabilitation after concussion in children” (4/17/2009)
9. Physical Therapy Grand Rounds – “White matter disease and postural control” (11/29/2007)
10. Physical Therapy Grand Rounds – “Mulligans” (9/27/2013)
11. Core Concepts in Disability and Rehabilitation Science – “Understanding central control of balance function” (10/14/2015)
12. Physical Therapy Grand Rounds – “Understanding central control of balance function” (12/14/2016)
13. SHRS Doctoral Seminar - “Issues in Responsible Conduct of Research – Peer Review“ (10/2017, 12/2019, 12/2021)
14. SHRS Doctoral Seminar - “Issues in Responsible Conduct of Research – Mentoring“ (04/2018, 04/2020, 04/2022)
15. SHRS Doctoral Seminar - “Issues in Responsible Conduct of Research – Plagiarism“ (12/2018, 12/2020)
16. SHRS Doctoral Seminar - “Issues in Responsible Conduct of Research – Data Management“ (04/2019, 04/2021)
17. SHRS Undergraduate Rehabilitation Science Seminar – “Case Study in Management of Balance Dysfunction – PT, OT, and Audiology” (09/2021)

### **National/International Education Seminars**

1. Audiology Online Vestibular Seminar (Pittsburgh, PA) – “Vestibular Rehabilitation” (6/25/2010)
2. American Physical Therapy Association, Neurology Section, (New Orleans, LA) - “Interpretation of Vestibular Function Tests: Applications in Vestibular Rehabilitation” (2/12/2011)
3. Singapore Health Manpower Development Plan (HMDP), Visiting Expert (Singapore) – Provided a series of 14 lectures and consulted with health care providers on management of concussion. (2/05/2018 – 2/09/2018)
4. American Physical Therapy Association Combined Sections Meeting, (New Orleans, LA), “Delayed recovery and medical interventions for recalcitrant vestibular disorders” (2/23/2018)
5. American Physical Therapy Association Combined Sections Meeting, (Washington, DC), Preconference Course “Integrating Current Evidence Into Neurologic PT Educational Programs – Vestibular Rehabilitation” (01/23/2019)
6. Presbyterian Senior Care Network VERTICAL Series, Longwood at Oakmont, (Pittsburgh, PA), “Exercise and Fall Prevention” (4/10/2019)
7. University of Pittsburgh Teaching Conference, Department of Communication Sciences and Disorders, “Integrating Evidence Based Practice in Vestibular Rehabilitation” (06/16/2019)

### **Student Advising**

Jeannette Burse - Department of Bioengineering Internship Program

Project Title: “The Direction of the Postural Sway Response to Sinusoidal Galvanic Stimulation”



Brian Wessel - Department of Bioengineering Internship Program  
Project Title: "The Role of Central and Peripheral Vision in the Maintenance of Balance"

Sandeep Devabhakthuni - Department of Bioengineering Internship Program  
Project Title: "Postural Responses Elicited by Optic Flow in Full FOV and HMD Environments"

Donna Skelly - Department of Physical Therapy, Advanced Masters Program  
Project Title: "Presentation of outpatients with spinal impairments and treatment choices of a physical therapist"

2010-2019: Advise 2-3 students per graduating class in undergraduate Rehabilitation Science Program

2001-2019: Advise 3-4 students per graduating class in Entry-level MPT and DPT Programs

### **Undergraduate Student Field Experience**

Since 2007, I have participated in being an Evaluating Faculty Member for 7 undergraduates in the Rehabilitation Science program who completed a supervised field experience.

### **Master's Thesis Committees**

#### **2003**

**1. Jeffrey G. Jasko, Master's Student, Department of Bioengineering  
Primary Advisor, Chair of Thesis Committee**

Thesis Title: "The role of central and peripheral optic flow in the control of upright posture"

#### **2005**

**2. April Chambers, Master's Student, Department of Bioengineering  
Member of Thesis Committee**

Thesis Title: "Slip-related muscle activation patterns of the stance leg during gait"

#### **2006**

**3. Kathryn O'Connor, Master's Student, Department of Bioengineering  
Primary Advisor, Chair of Thesis Committee**

Thesis Title: "Postural responses to sudden changes in optic flow and surface support"

#### **2009**

**4. Daniel Steed, Master's Student, Department of Bioengineering  
Member of Thesis Committee**

Thesis Title: "Locomotor responses to galvanic stimulation of the vestibular system in humans"

#### **2014**

**5. Mary Winger, Master's Student, Department of Epidemiology  
Member of Master of Public Health Essay Reading Committee**

Thesis Title: "Quality control of a novel clinical measurement of leg power in older adults: the AMTI force plate jump test"

**Doctoral Dissertation Committees (Chair or Co-Chair in bold)**

**2002**

**1. Diane M. Wrisley, PhD Student, School of Health and Rehabilitation Sciences  
Co-Chair of Dissertation Committee**

Dissertation Title: "The direction of the postural sway response to sinusoidal galvanic stimulation"

Dr. Wrisley received her PhD in 2002

Dr. Wrisley is Professor of Physical Therapy, Wingate University, NC

**2005**

**2. Bridget Meretta, DSc Student, Rocky Mountain University of Health Professions  
Member of Doctoral Project Committee**

Dissertation Title: "Sensitivity of Five Times Sit to Stand test as an indicator of change in balance after vestibular rehabilitation in adults with vestibular disorders"

Dr. Meretta received her DSc in 2005

**2006**

**3. Mark Musolino, PhD student, Department of BioEngineering  
Member of Dissertation Committee**

Dissertation Title: "Postural sway responses to periodic and non-periodic optic flow"

Dr. Musolino received his PhD in 2006

**2007**

**4. Sujata Pradhan, PhD Student, School of Health and Rehabilitation Sciences  
Member of Dissertation Committee**

Dissertation Title: "Manual force tracking in individuals with Parkinson's Disease"

Dr. Pradhan received her PhD in 2007

Dr. Pradhan is Associate Professor of Rehabilitation Medicine, University of Washington

**5. Arash Mahboobin, PhD Student, Department of Bioengineering  
Member of Dissertation Committee**

Dissertation Title: "Modeling human postural control in robots"

Dr. Mahboobin received his PhD in 2007

Dr. Mahboobin is Assistant Professor of Bioengineering, University of Pittsburgh

**2009**

**6. Shannon Clifford, PhD Student, School of Health and Rehabilitation Sciences  
Member of Dissertation Committee**

Dissertation Title: "Clinical presentation and treatment outcomes of children and adolescents with low back pain in physical therapy"

Dr. Clifford received her PhD in 2009

**7. Deborah Josbeno, PhD Student, School of Education  
Member of Dissertation Committee**

Dissertation Title: "The relationship between physical activity, physical function, and psychosocial variables in individuals post-bariatric surgery"

Dr. Josbeno received her PhD in 2009

Dr. Josbeno is Associate Professor of Physical Therapy, University of Pittsburgh

**8. Andrea Hergenroeder, PhD Student, School of Education  
Member of Dissertation Committee**

Dissertation Title: "The influence of body mass index on self-report and performance-based measures of physical function in adult women"

Dr. Hergenroeder received her PhD in 2009

Dr. Hergenroeder is Associate Professor of Physical Therapy, University of Pittsburgh

**2010**

9. Massimo Cenciarini, PhD Student, School of Engineering

Member of Dissertation Committee

Dissertation Title: "Modeling sensory integration and attention in postural control of older adults"

Dr. Cenciarini received his PhD in 2010

10. Alexandra Gil, PhD Student, School of Health and Rehabilitation Sciences

Member of Dissertation Committee

Dissertation Title: "The association between lower extremity movement patterns and physical function in people with knee osteoarthritis"

Dr. Gil received her PhD in 2010

Dr. Gil is Assistant Professor of Physical Therapy, University of Pittsburgh

**2007-2011**

11. Maha Mohammad, PhD Student, School of Health and Rehabilitation Sciences

Member of Dissertation Committee

Dissertation Title: "Gaze Stabilization Test: Reliability, Characteristics, and Patient Performance"

Dr. Mohammad received her PhD in 2011

Dr. Mohammad is Assistant Professor of Physical Therapy, University of Jordan

**2008-2011**

12. Alia Alghwiri, PhD Student, School of Health and Rehabilitation Sciences

Member of Dissertation Committee

Dissertation Title: "The development and validation of the Vestibular Activities and Participation (VAP) measure for people with vestibular disorders based on the International Classification of Functioning, Disability, and Health (ICF)"

Dr. Alghwiri received her PhD in 2011

Dr. Alghwiri is Professor of Physical Therapy, University of Jordan

13. David Wert, PhD Student, School of Health and Rehabilitation Sciences

Member of Dissertation Committee

Dissertation Title: "Stance time variability on the energy cost of walking in older adults"

Dr. Wert received his PhD in 2011

Dr. Wert is Assistant Professor of Physical Therapy, University of Pittsburgh

**2008-2012**

14. Khalid Alahmari, PhD Student, School of Health and Rehabilitation Sciences

Member of Dissertation Committee

Dissertation Title: "The Use of technology in vestibular rehabilitation and balance assessment"

Dr. Alahmari received his PhD in 2012

Dr. Alahmari is Dean of College of Applied Medical Sciences, King Khalid University, Saudi Arabia

**15. Bara Alsalaheen, PhD Student, School of Health and Rehabilitation Sciences  
Chair of Dissertation Committee**

Dissertation Title: "Vestibular rehabilitation for dizziness and balance disorders after concussion"

Dr. Alsalaheen received his PhD in 2012

Dr. Alsalaheen is Associate Professor of Physical Therapy, University of Michigan-Flint

**2009-2013**

**16. Chia-Chen Lin, PhD Student, School of Health and Rehabilitation Sciences  
Co-Chair of Dissertation Committee**

Dissertation Title: "The effect of vibrotactile feedback on healthy people and people with vestibular disorders during dual-task conditions"

Dr. Lin received his PhD in 2013

Dr. Lin is Assistant Professor of Physical Therapy, East Carolina University, NC

**2010 - 2013**

17. Faisal Asiri, PhD Student, School of Health and Rehabilitation Sciences

Member of Dissertation Committee

Dissertation Title: "Predictors of performance of activities of daily living (ADL) and gait speed for specific diagnostic groups of people receiving home-based rehabilitation (HBR)"

Dr. Asiri received his PhD in 2013

Dr. Asiri is Assistant Professor of Physical Therapy in the College of Applied Medical Sciences, King Khalid University, Saudi Arabia

**2010 - 2014**

18. Mohammad AlMohiza, PhD Student, School of Health and Rehabilitation Sciences

Member of Dissertation Committee

Dissertation Title: "Vestibular and balance rehabilitation quality improvement"

Dr. AlMohiza received his PhD in 2014

Dr. AlMohiza is Assistant Professor of Rehabilitation Science, King Saud University, Saudi Arabia

**2012 - 2015**

19. Kevin Huang, PhD Student, School of Computer Science, Carnegie Mellon University

Member of Dissertation Committee

Dissertation Title: "Exploring in-home monitoring of rehabilitation and creating an authoring tool for physical therapists"

Dr. Huang received his PhD in 2015

**2015 - 2016**

20. Ricardo Ferrari, PhD Student, School of Health and Rehabilitation Sciences

Member of Dissertation Committee

Dissertation Title: "The effect of electrical stimulation on aged skeletal muscle regenerative potential"

Dr. Ferrari received his PhD in 2016

Dr. Ferrari is Postdoctoral Associate, Department of Surgery, University of Pittsburgh

21. Maha Almarwani, PhD Student, School of Health and Rehabilitation Sciences

Member of Dissertation Committee

Dissertation Title: "Timing and coordination of gait: Impact of aging, gait speed and rhythmic auditory cueing"

Dr. Almarwani received her PhD in 2016

Dr. Almarwani is Assistant Professor of Applied Medical Sciences, King Saud University, Saudi Arabia

**2011 - 2016**

**22. Abdulaziz Alkathiry, PhD Student, School of Health and Rehabilitation Sciences  
Chair of Dissertation Committee**

Dissertation Title: "The effect of recent concussion on balance during single and dual tasks in adolescents"

Dr. Alkathiry received his PhD in 2016

Dr. Alkathiry is Chair of Rehabilitation Sciences, Majmaah University, Saudi Arabia

**2011 - 2016**

**23. Saud Alsubaie, PhD Student, School of Health and Rehabilitation Sciences  
Chair of Dissertation Committee**

Dissertation Title: "Postural and perceptual measurements during performance of static standing balance exercises"

Dr. Alsubaie received his PhD in 2016

Dr. Alsubaie is Assistant Professor of Rehabilitation Sciences, Prince Sattam bin Abdulaziz University, Saudi Arabia

**2012 - 2017**

**24. Bader Alqahtani, PhD Student, School of Health and Rehabilitation Sciences  
Chair of Dissertation Committee**

Dissertation Title: "Static standing balance and strength measurements before and after two different group exercise interventions in independent living older adults"

Dr. Alqahtani received his PhD in 2017

Dr. Alqahtani is Assistant Professor and Chair of Rehabilitation Sciences, Prince Sattam bin Abdulaziz University, Saudi Arabia

25. Sahar Abdulaziz, PhD Student, School of Health and Rehabilitation Sciences  
Member of Dissertation Committee

Dissertation Title: "The effect of instrumental activities of daily living and depressive symptoms on discharge destination following stroke rehabilitation"

Dr. Abdulaziz received her PhD in 2017

Dr. Abdulaziz is Lecturer of Physical Therapy, Imam Abdulrahman Bin Faisal University, Saudi Arabia

26. Kefah Alshebber, PhD Student, School of Health and Rehabilitation Sciences  
Member of Dissertation Committee

Dissertation Title: "The development and validation of the vestibular activities avoidance instrument for people with vestibular and balance disorders"

Dr. Alshebber received her PhD in 2017

Dr. Alshebber is Assistant Professor of Physical Therapy, University of St. Augustine, TX

**2013 - 2017**

27. Brooke Klatt, PhD Student, School of Health and Rehabilitation Sciences  
Member of Dissertation Committee

Dissertation Title: "The effect of vibrotactile feedback during balance and vestibular rehabilitation on functional balance outcomes"

Dr. Klatt received her PhD in 2017

Dr. Klatt is Assistant Professor, Department of Physical Therapy, University of Pittsburgh

**2014 - 2017**

28. MAJ Carrie Hoppes, PhD Student, School of Health and Rehabilitation Sciences  
Member of Dissertation Committee

Dissertation Title: "Use of near-infrared spectroscopy to examine cerebral activation during optic flow"

Dr. Hoppes received her PhD in 2017

Dr. Hoppes is Assistant Professor and Deputy Director, Army-Baylor University DPT Program, TX

**2016 - 2020**

29. Pamela Dunlap, PhD Student, School of Health and Rehabilitation Sciences  
Member of Dissertation Committee

Dissertation Title: "The effects of fear avoidance on disability among persons with vestibular disorders"

Dr. Dunlap received her PhD in 2020

Dr. Dunlap is a Postdoctoral Fellow, Department of Epidemiology, University of Pittsburgh

**Institute for Clinical Research Education – Mentor**

**2011**

1. Michael Morgan, DPT Student, School of Health and Rehabilitation Sciences  
"Examining the Psychometric Properties of the Falls Efficacy Scale-International (FES-I) in a Population of Patients with Dizziness and Imbalance"

2. Lauren Friscia, DPT Student, School of Health and Rehabilitation Sciences  
"Responsiveness of the Vestibular Activities and Participation (VAP) Scale for Individuals with a Balance or Dizziness Disorder"

**2016**

3. Nikki DiSalvio, DPT Student, School of Health and Rehabilitation Sciences  
"Balance and Mobility Neuroimaging Study"

**Clinical Instruction**

*2000, 2001, 2002*

Clinical Instructor at Oakland VA Medical Center, 8 hours/week

*2004, 2005*

Clinical Instructor - CRS Vestibular Clinic, 4 hours/week during fall semester

**RESEARCH  
CURRENT**

<b>Grant Number</b>	<b>Title</b>	<b>Role</b>	<b>% Effort</b>	<b>Years</b>	<b>Amount</b>
University of Pittsburgh Pepper Center Pilot Funding	Interplay between Balance, Gait and Sleep in Older Adults with Glaucoma (R Cham and S Tyagi, PIs)	Co-I	5%	2022-2023	40,000
NIH- UH3NS100541	Spinal Root Stimulation for Restoration of Function in Lower-Limb Amputees (L Fisher, PI)	Co-I	2.0%	2017-2022	1,128,000
DoD-CDMRP W81XWH-18-2- 0041	Randomized Controlled Trial of Precision Vestibular Rehabilitation in Military Personnel with mTBI (A Kontos and PJ Sparto, Co-PIs)	Co-PI	20%	2018-2022	2,213,000
NIH-U01 AG061393	Neurobiological drivers of mobility resilience: the dopaminergic system (N Bohnen and C Rosano, Co-PIs)	Co-I	15%	2018-2023	6,420,300
DoD-USAMRDC W81XWH-20-1- 0745	Multisite Randomized Controlled Trial of Targeted Multidomain (T-MD) Interventions for Complex mTBI (A Kontos, RJ Elbin, Co-PIs)	Co-I	5%	2020-2023	3,155,621

**PRIOR**

<b>Grant Number</b>	<b>Title</b>	<b>Role</b>	<b>% Effort</b>	<b>Years</b>	<b>Amount</b>
NIH-P30 AG024827	Pittsburgh Older American's Independence Center (S Greenspan, PI)	Co-I	2.3%	2015-2020	4,652,000
DoD-USAMRC W911QY-18-Q- 0018	Reliability of Functional Near-infrared Spectroscopy for Establishing Normative Cortical Activation Patterns (PJ Sparto, PI)	PI	5%	2018-2019	60,811
DoD-CDMRP W81XWH-16-1- 0011	Effectiveness of a Vestibular Ocular Motor Screening (VOMS) Tool for Identifying mTBI and Tracking Recovery in Military Personnel (AP Kontos, PI)	Co-I	2.5%	2016-2019	1,354,000
NIH-R01 AG014116	Postural Control in the Elderly: The Role of Attention (MS Redfern, PI)	Co-I	6.67%	2012-2016	800,000
NIH-R03 AG042046	Subject-Specific Vibrotactile Feedback For Improving Balance In Older Adults (PJ Loughlin, PI)	Co-I	0.25%	2012-2014	100,000
University of Pittsburgh Pepper Center Pilot Funding	Measures of mobility, cognition, and functional neuroimaging in residents of long term care (LTC) facilities (PJ Sparto and TJ Huppert, PIs)	Co-PI	5%	2013-2014	25,000

<b>Grant Number</b>	<b>Title</b>	<b>Role</b>	<b>% Effort</b>	<b>Years</b>	<b>Amount</b>
University of Pittsburgh Pepper Center Pilot Funding	Understanding locomotor plasticity in older adults (G Torres-Oviedo and PJ Sparto, PIs)	Co-PI	5%	2013-2014	25,000
University of Pittsburgh Aging Institute Pilot Seed Grant	Relationship between frailty, falls, and measures of mobility, cognition, and functional neuroimaging in residents of long term care (LTC) facilities (S Greenspan and PJ Sparto, PIs)	Co-PI	5%	2013-2014	20,000
Pennsylvania Lions Hearing Research Foundation (pilot)	Functional brain imaging in patients recovering from unilateral vestibular loss (PJ Sparto, PI)	PI	5%	2013-2014	20,000
NIH-P30 AG024827 (pilot)	Lower Extremity Muscle Contributions to Rapid Voluntary Stepping in the Elderly (A Mahboobin, PI)	Co-I	5%	2011-2012	10,000
NIH-R01 AG031118	Influence Of White Matter Damage On Step Initiation (PJ Sparto, PI)	PI	33%	2008-2012	820,000
NIH-R01 AG029546	Modeling Sensory Integration and Attention in Postural Control of Older Adults (PJ Loughlin, PI)	Co-I	7.2%	2007-2010	750,000
NIH-P30 AG024827 (Tech core)	Pittsburgh Older American's Independence Center (SA Studenski, PI)	Co-I	4%	2004-2009	4,000,000
Lions Hearing Research Foundation (pilot)	The Role Of Attention During Step Initiation In People With Vestibular Disorders (PJ Sparto, PI)	PI	5%	2007-2008	20,000
NIH-R01 AR048760	Knee Stability Training in Individuals with Knee OA (GK Fitzgerald, PI)	Co-I	10%	2004-2008	1,007,005
NIOSH-K01 OH008548	Biomechanical Stability of Pregnant Women (J McCrory, PI)	Cons.		2005-2008	324,000
NIH-K25 AG001049	Influence of Aging and Vestibular Disease on Postural Control (PJ Sparto, PI)	PI	65%	2001-2006	487,884
NIH-P30 AG024827 (pilot)	New Methods of Sensory Integration Testing using a Virtual Reality Environment (PJ Sparto, PI)	PI	25%	2004-2005	35,883
Foundation for	Quantification of Trunk Muscle	PI	10%	2000-2001	5,707



Grant Number	Title	Role	% Effort	Years	Amount
Physical Therapy	Control Strategies in Chronic Low Back Pain (PJ Sparto, PI)				

### **University of Pittsburgh Research Seminars**

1. Balance Disorders Division Seminar – “Direction of galvanically-induced postural sway” (05/22/2001)
2. Balance Disorders Division Seminar – “Variability of phase between moving visual stimuli and postural sway” (06/25/2002)
3. Balance Disorders Division Seminar – “Role of central and peripheral vision in control of postural sway” (10/22/2002)
4. Balance Disorders Division Seminar – “Update on experiments within the Virtual Reality lab” (01/14/2003)
5. Physical Therapy Faculty Seminar – “Visually induced postural responses: Effect of age and vestibular system disease” (03/14/2003)
6. Balance Disorders Division Seminar – “Visually induced postural responses in children aged 7-12” (04/01/2003)
7. Ophthalmology Research Seminar (Pittsburgh, PA) - “Vision and balance” (05/23/2003)
8. Balance Disorders Division Seminar – “Imbalance in a patient due to cerebellar resection” (10/14/2003)
9. Balance Disorders Division Seminar – “Chronic dizziness in a person 6 months post motor vehicle accident” (04/06/2004)
10. Balance Disorders Division Seminar – “Simulator sickness while performing coordinated eye and head movement tasks in an optic flow environment” (06/29/2004)
11. Balance Disorders Division Seminar – “Reliance on dynamic visual cues for postural control: effect of age is more important than history of unilateral vestibular hypofunction” (10/12/2004)
12. Balance Disorders Division Seminar – “Forty-nine year old female with dizziness and disconjugate eye movements” (11/02/2004)
13. Vestibular Seminar, Department of Otolaryngology Departmental Resident Research Oversight Committee - “Visual influences on balance” (1/10/2005)
14. Balance Disorders Division Seminar – “Postural Responses to Sudden Changes in Somatosensory Input While Viewing Optic Flow” (05/24/2005)
15. University of Pittsburgh Pepper OAIC Seminar – “Postural Responses to Sudden Changes in Somatosensory Input in Older and Young Adults” (06/20/2005)
16. Balance Disorders Division Seminar – “Quantification of head movements in subjects finding products in a virtual grocery store” (01/03/2006)
17. Balance Disorders Division Seminar – “Postural responses to sudden changes in visual and somatosensory input in older adults” (05/09/2006)
18. Balance Disorders Division Seminar – “Virtual Environments developed in Unreal Tournament” (4/24/2007)
19. Balance Disorders Division Seminar – “White matter disease and postural control” (7/3/2007)
20. Balance Disorders Division Seminar – “Delays in step initiation during choice reaction step task with incongruent directional cues” (10/16/2007)
21. Balance Disorders Division Seminar – “Multiple Postural Adjustments with Uncertainty of Step Direction” (12/4/2007)
22. University of Pittsburgh Pepper OAIC Seminar – “White matter disease and step initiation” (3/10/2008)

23. Balance Disorders Division Seminar – “Step Initiation In People With Vestibular Disorders” (11/11/2008)
24. Celebrating Research on Aging: Building Collaborations for the Future – “Stepping tasks that require greater executive control induce multiple postural adjustments” (12/09/2008)
25. Centers for Rehab Services Neuro/Vestibular Seminar – “White matter disease” (02/18/2009)
26. Balance Disorders Division Seminar – “Vestibular rehabilitation after concussion in children” (4/7/2009)
27. Balance Disorders Division Seminar – “Posturography and rotational testing in children 3-9 years of age: normative data ” (7/14/2009)
28. Balance Disorders Division Seminar – “Vestibular rehabilitation after concussion” (1/19/2010)
29. University of Pittsburgh Pepper OAIC Seminar – “Brain Imaging and Step Initiation” (02/01/2010)
30. Balance Disorders Division Seminar – “Step initiation in older adults” (4/20/2010)
31. Balance Disorders Division Seminar – “Advances in the Assessment and Treatment of Balance Disorders at UPMC” (3/12/2012)
32. Vestibular Training Seminar – “Overview of Human Balance Control” (10/5/2012)
33. Balance Disorders Division Seminar – “Structural Neuroimaging and Step Initiation” (11/20/2013)
34. Balance Disorders Division Seminar – “Head Coach” (3/18/2014)
35. Balance Disorders Division Seminar – “Update on NIRS-Balance Research” (09/30/2014)
36. Balance Disorders Division Seminar – “Relationship between frailty, falls, mobility, cognition and strength in residents of long term care (LTC) facilities” (12/16/2014)
37. Balance Disorders Division Seminar – “Gaze Stabilization Test in Individuals with Concussion” (09/22/2015)
38. Balance Disorders Division Seminar – “Vestibular Rehab Case” (11/10/2015)
39. University of Pittsburgh Department of Bioengineering Graduate Seminar, “Aging and the Biomechanics of Step Initiation” (12/10/2015)
40. Centers for Rehab Services Neuro Meeting, (Pittsburgh, PA), “Neuroimaging of balance and vestibular function” (05/25/2016)
41. Balance Disorders Division Seminar – “fNIRS during vestibular stimulation” (06/18/2019)

### **National/International Research Seminars**

1. Arthritis Institute Research Conference (Pittsburgh, PA) – “Quantification of trunk muscle control strategies in chronic low back pain” (09/24/1999)
2. Pittsburgh Chapter, Society of Otorhinolaryngology and Head-Neck Nurses, Annual Scientific Meeting (Pittsburgh, PA) - “Vision and Balance” Pittsburgh, PA (06/20/2003)
3. Jewish Rehabilitation Hospital and McGill University, (Montreal, Canada) - “Influence of full field of view optic flow on postural responses across the age span” (3/29/2006)
4. Quebec Rehabilitation Institute and Laval University, (Quebec, Canada) - “Influence of full field of view optic flow on postural responses across the age span” (3/30/2006)
5. Ohio State University, (Columbus, OH) - “The Influence of Changing Sensory Input on Standing Balance in Older Adults” (4/10/2006)
6. University of Cincinnati, (Cincinnati, OH) – “The Influence of Changing Sensory Input on Standing Balance in Older Adults” (6/19/2006)
7. American Physical Therapy Association, Section on Geriatrics, (Boston, MA) - “Dizziness in the Older Adult” (2/15/2007)
8. American Physical Therapy Association, Section on Orthopaedics, (Boston, MA) - “Research Information Exchange Center” (2/16/2007)

9. Innovations in Balance and Locomotor Rehabilitation, (Montreal, Canada) - "Treatment of Vestibular Disorders using Virtual Reality" (7/13/2007)
10. American Physical Therapy Association, Neurology Section, (Nashville, TN) - "Research Information Exchange Center" (2/08/2008)
11. International Society of Electromyography and Kinesiology, (Niagara Falls, ON, CA) – "The use of a CAVE-like Environment for the treatment of Persons with Vestibular Disorders" (06/21/2008)
12. American Physical Therapy Association, Neurology Section, (Nashville, TN) - "Research Information Exchange Center" (2/11/2009)
13. Pennsylvania Lions Hearing Research Foundation, (Altoona, PA) - "Research Program at the Center for Balance Disorders" (8/07/2009)
14. Second International Symposium on Quality of Life Technology, (Las Vegas, NV) - "Treatment of Vestibular Disorders with Virtual Reality" (6/28/2010)
15. Ohio Physical Therapy Association, 2011 Fall Scientific Symposium, (Columbus, OH) - "Dysequilibrium of Aging" (10/14/2011)
16. International Society for Posture and Gait Research, World Congress, (Sevilla, Spain), "Understanding cortical responses during vestibular and balance function tests using NIRS" (06/30/2015)
17. American Physical Therapy Association Combined Sections Meeting, (Anaheim CA), "Neuroimaging of Motor and Sensory Function in Health and Disease" (2/18/2016)
18. PERFORM Centre Colloquium, (Montreal, Quebec, Canada) - "Understanding the cortical control of balance and vestibular function using functional near infrared spectroscopy" (10/23/2017)
19. Center for Interdisciplinary Research in Rehabilitation and Social Integration (CIRRIS) Seminar, (Quebec City, Quebec, Canada) - "Understanding the cortical control of balance and vestibular function using functional near infrared spectroscopy" (10/25/2017)
20. International Conference for Vestibular Rehabilitation, (Chicago, IL) - "Neuroimaging of balance and vestibular function using functional near infrared spectroscopy" (8/17/2018)

## **LIST OF CURRENT RESEARCH INTERESTS**

### **1. Modeling Sensory Integration and Attention in Postural Control of Older Adults**

It is well-known that upright standing balance depends on availability of accurate sensory feedback coming from somatosensory, visual and vestibular modalities. The objective of these studies was to examine how different subject populations weight and reweight this feedback during while the sensory inputs change. Our findings illustrate that older adults are more reliant on visual feedback than young adults, and that it takes older adults longer to respond to changes in the sensory environment. In addition, we have discovered that older adults are more destabilized when augmented vibrotactile feedback is initially experienced by older adults.

### **2. Vestibular and Balance Rehabilitation after Concussion**

Dizziness and imbalance are some of the most prevalent sequelae after concussion. Our clinical and research group at the University of Pittsburgh have led the advancement of using vestibular and balance rehabilitation to help people recover after concussion. These studies established initial evidence for the role of vestibular rehabilitation, and developed normative criteria for balance testing of the high-school aged population.

### **3. Neuroimaging of Postural Activities**

The development of functional neuroimaging has led to greater understanding of cortical processes that guide behavior. One of the most important behaviors that establishes and maintains participation and quality of life is mobility. Unfortunately, traditional neuroimaging

techniques such as fMRI and PET are unable to be used during many functional activities. The aim of these investigations is to use functional Near Infrared Spectroscopy, which can be used during upright and continuous movements, to understand cortical influences on posture and gait activities. Furthermore, we are looking at the neuroimaging correlates of simulated balance activities using an MRI-compatible force platform. These activities have highlighted the importance of the vestibular cortex for postural activities.

## **SERVICE**

### **Service to Department of Physical Therapy**

1. 2002-Present: Admissions Committee
2. 2002-Present: Lead reviewer, IRB Scientific Review Committee
3. 2014: Chair, DPT program Technical Standards Committee
4. 2015: Chair, Search Committee for Tenure-Track Asst. Professor position
5. 2020: Chair, Search Committee for 8 Faculty to support DPT Hybrid option
6. 2021: Chair, Search Committee for Health Services Research Faculty
7. 2022: Co-Chair, Search Committee for Neuroscience Faculty

### **Service to SHRS**

1. 2000: SHRS Day – Faculty Facilitator
2. 2000-2013: SHRS Doctoral Program - Biomechanics Core Advisory Panel
3. 2001-2010: SHRS Space Utilization Committee
4. 2001-2004: SHRS Nominating Committee (Chair 2003-2004)
5. 2002-2008: SHRS Instructional Information Technology Committee
6. 2004-2005: SHRS Faculty, Secretary
7. 2005-2007: SHRS Faculty, Chair
8. 2008-2011: SHRS Representative to the Faculty Assembly, University Senate
9. 2010-2013: SHRS Doctoral Program - Biomechanics Core Area Chair
10. 2013-Present: Ad Hoc Appointment, Promotion, and Tenure Committees
11. 2014-2016: SHRS Space Utilization Committee
12. 2015-2021: SHRS Doctoral Program: Core Concepts in Disability Sequence Preliminary Exam
13. 2021-Present: SHRS Mentoring Academy Committee
14. 2021-Present: Mentor for three SHRS faculty
15. 2021-Present: SHRS Appointment, Promotion and Tenure Committee
16. 2022: Chair, Search Committee for Chair of Department of Communication Science and Disorders

### **Service to University of Pittsburgh**

1. 2003-2004: Department of BioEngineering - Evaluator, Technical Symposium
2. 2009-Present: Co-Director, University of Pittsburgh Vestibular Rehabilitation, An Advanced Course and Update
3. 2013-2014: Judge, Rehabilitation Institute Research Day
4. 2013: Institute for Clinical Research Education, TEAM Panelist
5. 2013-2014: Pepper Center Mock Study Section Reviewer
6. 2014-2022: Competitive Medical Research Fund Reviewer
7. 2015: NSF Graduate Research Fellowship Program Review, Dept. Bioengineering
8. 2015: University of Pittsburgh Pepper Center – Pilot Grant Review Committee

9. 2017: University of Pittsburgh Aging Institute – Seed Grant Review Committee
10. 2017-2022: Chair, DSMB, RESET-BP study (PRO12080401, Bethany Barone-Gibbs)
11. 2017, 2019: Mock Reviewer, Institute for Clinical Research Education
12. 2020: Judge, BioE Day (Department of Bioengineering)

### Service to Community

1. 2004 – 2019: Univ. Pittsburgh Health Career Scholars Academy – Lab tour for HS students
2. 2014-2015: Pittsburgh Regional Science and Engineering Fair, Judge
3. 2017-2019: Investing Now – Presentation to High School Students interested in STEM careers
4. 2018 – 2019: Birmingham Free Clinic – provide pro bono physical therapy 3 – 4 times per year

### Service to National/International Associations

1. 2002: American Society of Biomechanics – Grants-in-Aid program reviewer
2. 2002-2005: APTA Neurology Section, Vestibular SIG, Secretary
3. 2005-2006: APTA Neurology Section, Vestibular SIG, Web Liaison
4. 2009-2012: APTA Research Section, Abstract Reviewer
5. 2011-2014: Foundation for Physical Therapy, Scientific Review Committee
6. 2014-2019: APTA Academy of Neurologic PT, Research Committee and Abstract Reviewer
7. 2015: International Society for Posture and Gait Research, Abstract Reviewer
8. 2016-Present: International Society for Posture and Gait Research, Scientific Content Committee, Awards Committee and External Relations Committee
9. 2018-2022: Board of Directors, International Society for Posture and Gait Research, (elected position)
10. 2019-2025: Director of Research, Academy of Neurologic Physical Therapy, APTA, (elected position – 2 consecutive terms)

### Grants Reviewer

1. 2006: Arthritis Research Campaign (UK)
2. 2007: Ad Hoc Member of NIH Study Section: ZRG1-F02B, F31/F32 Fellowship Review
3. 2007: Ad Hoc Member of NIH Study Section: MRS, Research Project Grant Review
4. 2010: Ad Hoc Member of NIH Study Section: MRS, Research Project Grant Review
5. 2010: US-Israel Binational Science Foundation
6. 2011-2014: Foundation for Physical Therapy: Scientific Review Committee
7. 2012: Ad Hoc Member of VA Merit Review, Study Section: RRD0: Regenerative Medicine
8. 2012: Ad Hoc Member of NICHD Special Emphasis Panel: ZHD1 DRG-D (DL), T32 Review
9. 2013: Ad Hoc Member of VA Merit Review, Study Section: RRD4: Psychological Health & Social Reintegration
10. 2017: Ad Hoc Member of Dept. of Defense Psychological Health/Traumatic Brain Injury Review Panel
11. 2018: Ad Hoc Reviewer of NIH, NIDCD Loan Repayment Program

### Journal Refereeing

1. 1999-Present: *IEEE - Transactions on Neural Systems and Rehabilitation Engineering*
2. 2000-Present: *Physical Therapy*

3. 2001-Present: *Gait & Posture*
4. 2001-Present: *Journal of Vestibular Research*
5. 2002-Present: *Clinical Biomechanics*
6. 2003-Present: *Experimental Brain Research*
7. 2003-Present: *Journal of the American Geriatrics Society*
8. 2004-Present: *Journal of Neurologic Physical Therapy*
9. 2004-Present: *Journal of Applied Biomechanics*
10. 2004-Present: *Cognitive Brain Research*
11. 2004-Present: *Archives of Physical Medicine and Rehabilitation*
12. 2005-Present: *Journal of Sports Sciences*
13. 2007-Present: *Journals of Gerontology, Series A: Medical Sciences*
14. 2007-Present: *Journal of Autism and Developmental Disorders*
15. 2007-Present: *Journal of NeuroEngineering and Rehabilitation*
16. 2008-Present: *Neuroscience Letters*
17. 2008-Present: *Journal of Vision*
18. 2008-Present: *Clinical Neurophysiology*
19. 2009-Present: *Journal of Motor Behavior*
20. 2012-Present: *Age*

#### Editorships

- |                  |                  |   |
|------------------|------------------|---|
| 1. 2003-2004:    | Associate Editor | <i>IEEE - Transactions on Neural Systems and Rehabilitation Engineering</i> |
| 2. 2004-2017:    | Associate Editor | <i>Clinical Biomechanics</i>  |
| 3. 2007-Present: | Editorial Board  | <i>Journal of NeuroEngineering and Rehabilitation</i>                       |
| 4. 2017-Present: | Editorial Board  | <i>Gait and Posture</i>   |