

BARBARA KELLERMAN SMITH

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EDUCATION

Doctor of Philosophy in Rehabilitation Science August 2010
University of Florida, Gainesville, Florida
Dissertation: Inspiratory Muscle Strength Training and Diaphragm Remodeling
Mentor: A. Daniel Martin, PT, PhD

Master of Health Science August 1998
University of Florida, Gainesville, Florida

Master of Physical Therapy May 1994
University of Pittsburgh, Pittsburgh, Pennsylvania

Bachelor of Science in Molecular Biology May 1992
Grove City College, Grove City, Pennsylvania

LICENSURE INFORMATION

1996 to present	Physical Therapist, Florida
2000 to 2006	Physical Therapist, Oklahoma
1999 to 2006	Physical Therapist, California
1996 to 2000	Physical Therapist, Texas
1994-1996	Physical Therapist, Pennsylvania

WORK EXPERIENCE: ACADEMIC January 2011 – present
Research Assistant Professor
Department of Physical Therapy
University of Florida, Gainesville, FL

Research Assistant Professor May 2014 – present
Department of Pediatrics
University of Florida, Gainesville, FL

Post-doctoral Associate August 2010 – December 2010
Department of Physiological Sciences
University of Florida, Gainesville, FL

Graduate Research Assistant January 2007 – September 2007
Department of Physical Therapy
University of Florida, Gainesville, FL

Adjunct Instructor June 2006 – November 2006
 Physical Therapy Assistant Program
 Pensacola Junior College, Pensacola, FL

EMPLOYMENT AND POSITIONS HELD: CLINICAL

On-call Physical Therapist December 2006 – February 2015
 UF Health Shands Medical Center, Gainesville, FL

Senior Therapist and Clinical Coordinator of Clinical Education May 2003 – December 2006
 Sacred Heart Hospital, Pensacola, FL

Physical Therapy Team Leader March 2001 – May 2003
 Integrated Specialty Hospital, Edmond, OK

Physical Therapist April 2000 – March 2001
 HealthSouth Rehabilitation Hospital, Oklahoma City, OK

Physical Therapist March 1999 – April 2000
 F.I.R.M. Associates, Inc., Fresno, CA

Physical Therapist August 1998 – February 1999
 NovaCare Rehabilitation, Inc., Corpus Christi, TX

On-call Physical Therapist September 1996 – July 1998
 Shands Medical Center, Gainesville, FL

Physical Therapist May 1994 – August 1996
 University of Pittsburgh Medical Center, Pittsburgh, PA

GRADUATE COMMITTEE ACTIVITIES

Candidate's Role	Student	Major	Complete Date
Member Ph.D	FNU Shakeel Ahmed	Rehabilitation Science	ongoing
Member Ph.D	Alison Barnard	Rehabilitation Science	ongoing

TEACHING, ADVISING, AND INSTRUCTIONAL ACCOMPLISHMENTS

University of Florida, PhD Program in Rehabilitation Science

Course Instructor

- PhD Seminar- RSD 6930 (1 credit, Spring semester, 2015)

University of Florida, Department of Physical Therapy

Course Instructor

- Principles of Disease- PHT 6302C (4 credits, Fall semester, 2013-present)
- Basic Clinical Skills- PHT 6207C (2 credits, Spring semester, 2011-2014)

Guest Lecturer

- Basic Clinical Skills- PHT 6207C (2 credits, Spring semester, 2015-present)
- Differential Diagnosis in Physical Therapy- PHT 6730, (2008-2013, 2015)
- Cardiopulmonary Disorders in Physical Therapy- PHT 6381C, (Fall semester, 2007-8, 2012-present)
- Human Physiology- PHT 6935C, (2011-2013, 2016)
- Pediatrics in Physical Therapy- PHT 6322, (Summer semester, 2012-2014)

Project Mentor

- Evidence-Based Practice III- PHT 6609 (Spring semester, 2010-present)

Group Leader

- Interdisciplinary Family Health- BMS 6829, (Fall and Spring semesters, 2011-2015)

Graduate Teaching Assistant

- Therapeutic Exercise and Neurologic Evaluation, Exercise Physiology, Modalities, Orthopedics, and Human Diseases Class (1996-1998)

Pensacola Junior College, Department of Dental and Emergency Services, Physical Therapist Assistant Course Coordinator

- Therapeutic Techniques and Disabilities II PHT 2162/2162-L, (4 credits, 2006)

Undergraduate Student Advisement

Shannon Allen, 2016-7	College of Public Health and Health Professions Senior Honors Thesis; University Scholars Program Awardee
Cassie Paulus, 2016-7	College of Public Health and Health Professions Senior Honors Thesis
Melissa Smith, 2016-7	College of Public Health and Health Professions Senior Honors Thesis
Jordan Marcus, 2015-16	College of Public Health and Health Professions Senior Honors Thesis; University Scholars Program Awardee
Stephanie Salabarria, 2014-15	College of Public Health and Health Professions Senior Honors Thesis
Valerie Vernot, 2012-15	College of Liberal Arts and Sciences, Psychology Major
Rachel Ehrlich, 2012-13	College of Public Health and Health Professions Senior Honors Thesis
Cameron Martin, 2011-13	College of Liberal Arts and Sciences, Biology Major Recipient, 2013 NCAA Byers Postgraduate Scholarship
Lauren Donnangelo, 2010-12	College of Liberal Arts and Sciences, Biology Major 2012 University of Florida-Howard Hughes Medical Institute Science for Life Scholar; University Scholars Program Awardee

Brittany Darragh, 2008-11	College of Liberal Arts and Sciences, Honors Thesis in Biology University of Florida-Howard Hughes Medical Institute Mentee
Sara Attia, 2008-9	University of Florida-Howard Hughes Medical Institute Mentee Finalist: Research Poster Award, Southeastern American College of Sports Medicine Conference, February 12-14, 2009
Christine Ancheta, 2007-8	College of Public Health and Health Professions Senior Honors Thesis
Lisa Carter, 2007-8	College of Public Health and Health Professions Senior Honors Thesis
Samantha Justice, 2007-8	College of Public Health and Health Professions Senior Honors Thesis Awardee: Outstanding Poster Presentation, College of Public Health and Health Professions Research Day, April 16, 2008

CREATIVE WORKS OR ACTIVITIES

“Physiological Measurement of Transdiaphragmatic Pressure” Instructional Multimedia Presentation	2015
“Twitch Diaphragmatic Pressure with Phrenic Magnetic Stimulation” Instructional Multimedia Presentation	2015

PUBLICATIONS

Refereed Publications

1. Mack DL, Poulard K, Goddard MA, Latournerie V, Snyder JM, Grange RW, Elverman MR, Denard J, Veron P, Buscara L, Le Bec C, Hogrel JY, Brezovec AG, Meng H, Yang L, Liu F, O’Callaghan M, Gopal N, Kelley VE, **Smith BK**, Strande JL, Mavilio F, Beggs AH, Mingozi F, Lawlor MW, Buj-Bello A, Childers MK. Systemic AAV8-mediated gene therapy drives whole body correction of myotubular myopathy in dogs. *Molecular Therapy*. 2017; 25(4): 839-54. PMID: 28237839. PMCID: PMC5383631.
2. Mankowski RT, Ahmed S, Beaver T, Marvin D, Chul H, Hess P, Martin T, **Smith BK**, Someya S, Leeuwenburgh A, Martin AD. Intraoperative hemidiaphragm electrical stimulation reduces oxidative stress and upregulates autophagy in surgery patients undergoing mechanical ventilation- exploratory study. *Journal of Translational Medicine*. 2016; 14(1): 305. PMID: 27784315. PMCID: 5080720.
3. **Smith BK**, Martin AD, Lawson LA, Vernot V, Marcus J, Islam S, Shafi N, Corti M, Collins SW, Byrne BJ. Inspiratory muscle conditioning exercise and diaphragm gene therapy in Pompe disease: clinical evidence of respiratory plasticity. *Experimental Neurology*. PMID: 27453480. PMCID: 5178134.
4. **Smith BK**, Fuller DD, Martin AD, Lottenberg L, Islam S, Lawson LA, Onders RP, Byrne BJ. Diaphragm pacing in ventilator dependent Pompe disease. *Physical Therapy*. 2016; 96(5): 696-703. PMID: 26893511. PMCID: PMC4858660.

5. **Smith BK**, Corti M, Martin AD, Fuller DD, Byrne BJ. Altered activation of the diaphragm in late-onset Pompe disease. *Respiratory Physiology & Neurobiology*. 2016; 222:11-5. PMID: 26612101. PMCID: PMC4869700.
6. **Smith BK**, Renno M, Green MM, Sexton T, Martin D, Corti M, Byrne BJ. Respiratory motor function in individuals with centronuclear myopathy and ventilatory insufficiency. *Muscle and Nerve*. 2016; 52(2): 214-21. PMID: 26351754. PMCID: PMC4718843.
7. Goddard MA, Mack DL, Hogrel JY, Czerniecki SM, Kelly VE, Snyder JM, Grange RW, Lawlor MW, **Smith BK**, Beggs AH, Childers MK. Muscle pathology, limb strength, walking gait, respiratory function and neurological impairment establish disease progression in the p.N155K canine model of X-linked myotubular myopathy. *Annals of Translational Medicine*. 2015; 3(18): 262. doi: 10.3978/j.issn.2305-5839.2015.10.31 PMID: 26605308. PMCID: PMC4630545.
8. Corti M, **Smith BK**, Falk D, Fuller DD, Subramony SH, Byrne BJ, Christou EA. Altered activation of the tibialis anterior in individuals with Pompe disease: implications for motor unit dysfunction. *Muscle and Nerve*. 2015; 51(6): 877-83. PMID: 25186912. PMCID: PMC4348349.
9. Corti M, Elder M, Falk D, Lawson LA, **Smith BK**, Nayak B, Conlon T, Clement N, Erger K, Lavassani E, Green M, Doerfler P, Herzog R, Byrne BJ. B-cell depletion is protective against anti-AAV capsid immune response: a human subject case study. *Molecular Therapy Methods: Clinical Development*. 2014; 1: pii: 14033. PMID: 25541616. PMCID: PMC4275004.
10. Byrne BJ, Collins S, Mah C, **Smith B**, Conlon T, Martin AD, Corti M, Cleaver B, Islam S, Lawson LA. Phase I/II trial of diaphragm delivery of recombinant adeno-associated virus acid alpha-glucosidase (rAAV1-CMV-GAA) gene vector in patients with Pompe disease. *Human Gene Therapy: Clinical Development*. 2014; 25(3): 143-63. PMID: 25238277.
11. **Smith BK**, Mathur S, Ye F, Martin AD, Truelson S, Vandenborne K, Davenport PW. Intrinsic Transient Tracheal Occlusion Training Facilitates Myogenic Remodeling in Rodent Parasternal Intercostal Fibers. *Journal of Rehabilitation Research and Development*. 2014; 51(5): 841-54. PMID: 25509059. PMCID: PMC4269303.
12. Ahn B, Beaver T, Martin T, Hess P, Brumback BA, Ahmed S, **Smith BK**, Leeuwenburgh C, Martin AD, Ferreira LF. Phrenic nerve stimulation increases human diaphragm fiber force after cardiothoracic surgery. *American Journal of Respiratory and Critical Care Medicine*. 2014; 190(7): 837-9. PMID: 25271750. PMCID: PMC4299610.
13. Ye F, McCoy SC, Ross HH, Bernardo JA, Beharry AW, Senf SA, Judge AR, Beck DT, Conover CF, Cannady DF, **Smith BK**, Yarrow JF, Borst SE. Transcriptional regulation of myotrophic actions by testosterone and trenbolone on androgen-responsive muscle. *Steroids*. 2014; 87: 59-66. PMID: 24928725.
14. **Smith BK**, Goddard M, Childers MK. Respiratory assessment in centronuclear myopathies. *Muscle and Nerve*. 2014; 50 (3): 315-26. PMID: 24668768. PMCID: PMC4140950.

15. Martin AD, Joseph AM, Beaver TM, **Smith BK**, Martin TD, Berg K, Hess PK, Deoghare HV, Leeuwenburgh, C. Effect of intermittent phrenic nerve stimulation during cardiothoracic surgery on mitochondrial respiration in the human diaphragm. *Critical Care*. 2014; 42(2): e152-6. PMID: 24126442. PMCID: PMC3947040.
16. **Smith BK**, Gabrielli A, Davenport PW, Martin AD. Effect of Training on Inspiratory Load Compensation in Weaned and Unweaned Mechanically Ventilated ICU Patients. *Respiratory Care*. 2014; 59(1): 22-31. PMID: 23764858. PMCID: PMC4157996.
17. Mah CS, Soustek MS, Todd AG, McCall A, **Smith BK**, Corti M, Falk DJ, Byrne BJ. Adeno-Associated Virus-Mediated Gene Therapy for Metabolic Myopathy. *Human Gene Therapy*. 2013; 24(11): 928-36. PMID: 24164240. PMCID: PMC3814817.
18. Fuller DD, Elmallah M, **Smith BK**, Corti M, Lawson LA, Falk DJ, Byrne BJ. The Respiratory System in Pompe Disease. *Resp Physiol Neurobiol*. 2013; 189(2): 241-9. PMID: 23797185. PMCID: PMC4083814.
19. Martin AD, **Smith BK**, Gabrielli, A. Mechanical ventilation, diaphragm weakness and weaning: a rehabilitation perspective. *Resp Physiol Neurobiol*. 2013; 189(2): 377-83. PMID: 23692928. PMCID: PMC3808482.
20. **Smith BK**, Mah CS, Martin AD, Lawson LA, Conlon TJ, Clement N, Islam S, Dobjia N, Collins SW, Byrne BJ. Phase I/II trial of AAV1-GAA gene therapy to the diaphragm for chronic respiratory failure in Pompe disease: initial safety and ventilatory outcomes. *Human Gene Therapy*, 2013; 24(6): 630-40. PMID: 23570273. PMCID: PMC3689178.
21. **Smith BK**, Bleiweis MS, Neel C, Martin AD. Inspiratory Muscle Strength Training in Infants with Congenital Heart Disease and Prolonged Mechanical Ventilation: Case Report. *Physical Therapy*. 2013; 93(2): 229-36. PMID: 22466028. PMCID: PMC3563028.
22. **Smith BK**, Martin AD, Vandeborne K, Darragh BD, Davenport PW. Chronic intrinsic transient tracheal occlusion elicits diaphragm remodeling in conscious rodents. *PLoS One*. 2012; 7(11): e29624. PMID: 23133678. PMCID: PMC3486807.
23. Goddard MA, Mitchell EL, **Smith BK**, Childers MK. Establishing Clinical End Points of Respiratory Function in Large Animals for Clinical Translation. *Physical Medicine and Rehabilitation Clinics of North America*, 2012; 23(1): 75-94. PMID: 22239876. PMCID: in progress.
24. Huang T, Deoghare HV, **Smith BK**, Beaver TM, Baker HV, Martin AD. Gene Expression Changes in the Human Diaphragm Following Cardiothoracic Surgery. *Journal of Thoracic and Cardiovascular Surgery*. 2011; 142(5): 1214-22. PMID: 21463877. PMCID: in progress.
25. Byrne BJ, Falk DJ, Pacak CA, Nayak S, Hersog RW, Elder ME, Collins SW, Conlon TJ, Clement N, Cleaver BD, Cloutier DA, Porvasnik SL, Islam S, Elmallah MK, Martin A, **Smith BK**, Fuller DD, Lawson LA, Mah CS. Pompe disease gene therapy. *Human Molecular Genetics*. 2011; 20(R1): R61-8. PMID: 21518733. PMCID: PMC3095055.

26. Edwards TM, **Smith BK**, Watts DL, Germain-Aubrey CC, Roark A, Bybee S, Cox CE, Hamlin HJ, Guillette LJ. Group-Advantaged Training of Research (G.A.T.O.R.): A Metamorphosis of Mentorship. *Bioscience*. 2011; 61(4): 301-311. DOI: 10.1525/bio.2011.61.4.10.
27. Martin AD, **Smith BK**, Davenport PW, Harman E, Gonzalez-Rothi R, Baz M, Layon J, Banner M, Caruso L, Deoghare H, Huang T, Gabrielli A. Inspiratory muscle strength training improves weaning outcome in failure to wean patients: A controlled trial. *Critical Care*. 2011; 15(2): R84. PMID: 21385346. PMCID: PMC3219341.
28. **Smith BK**, Bleiweis MS, Zauhar J, Martin AD. Inspiratory Muscle Training in a Child with Nemaline Myopathy and Organ Transplantation. *Pediatric Critical Care Medicine*, 2011; 12(2): e94-8. PMID: 20407395. PMCID: PMC3633211.
29. **Smith BK**. A Pilot Study Evaluating Therapist-Nurse Inter-Rater Reliability of Dionne's Egress Test in Morbidly Obese Patients. *Acute Care Perspectives*, 2008; 17(4): 1-7. ISSN: 1551-9147.
30. **Kellerman BA**, Martin D, Davenport PW. Inspiratory Strengthening Effect on Resistive Load Detection and Magnitude Estimation. *Medicine and Science in Sports and Exercise*. 2000; 32(11): 1859-1867. PMID: 11079514. PMCID: PMC in progress.
31. **Kellerman BA**. The Role of Physical Therapy In The Multidisciplinary Treatment of Necrotizing Fasciitis. *Acute Care Perspectives*, 1996; 4: 8-9, 24-25. ISSN: 1551-9147.

Non-refereed Publications

1. **Smith BK**, Renno M, Martin D, Corti M, Byrne BJ. Respiratory motor function in individuals with centronuclear myopathy and ventilatory insufficiency (Response to Letter to Editor). *Muscle and Nerve*. 2016; 53 (4): 660-1. PMID: 26561983.
2. Rutkowski A, Chatwin M, Koumbourlis A, Fauroux B, Simonds A; CMD Respiratory Physiology Consortium. 203rd ENMC international workshop: respiratory pathophysiology in congenital muscle disorders: implications for proactive care and clinical research 13-15 December, 2013, Naarden, The Netherlands. *Neuromuscular Disorders*. 2015; 25(4): 353-8. PMID: 25613806.

Published Refereed Abstracts

1. **Smith BK**, Fuller DD, Martin AD, Lawson LA, Lottenberg L, Islam S, Byrne BJ. "Diaphragm pacing augments ventilatory function in Pompe disease." (2013) *Molecular Genetics & Metabolism*, 108, S86.
2. **Smith BK**, Byrne BJ, Onders RP, Lawson LA, Lottenberg L, Islam S, Martin AD. "Chronic Intramuscular Electrodes to Evaluate Diaphragm Inspiratory Load Compensation in a Ventilated Adult." (2012) *American Journal of Respiratory and Critical Care Medicine*, 185, A5979.
3. Byrne B, **Smith B**, Martin A, Mah C, Lawson LA, Islam S, Conlon T, Phillips D, Collins S. "Phase I/II Trial of Adeno-associated Virus Acid-alpha Glucosidase (GAA) Gene Therapy for Ventilatory Failure in Pompe Disease." (2012) *Molecular Genetics and Metabolism*, 105, S24.

4. Deoghare H, Joseph AM, **Smith B**, Leeuwenburgh C, Beaver T, Martin T, Martin D. “Effect Of Intermittent Phrenic Nerve Stimulation During Cardiothoracic Surgery On Human Diaphragm Mitochondrial Respiration.” (2011) *American Journal of Respiratory and Critical Care Medicine*, 183, A2166.
5. **Smith, BK**, Bleiweis MS, Deoghare H, Neel C, Zauhar J, Martin AD. “Inspiratory Muscle Strength Training in an Infant with Congenital Heart Disease and Prolonged Mechanical Ventilation.” (2011) *American Journal of Respiratory and Critical Care Medicine*, 183, A1865.
6. **Smith BK**, Martin AD, Davenport PW. “Respiratory Muscle Conditioning Intensity is a Greater Factor than Duration for Eliciting Diaphragm Fiber Hypertrophy.” (2011) *FASEB J.* 25, 653.5.
7. **Smith BK**, Martin AD, Davenport PW. “Duration of Intermittent Total Tracheal Occlusion (ITTO) Sessions Influences Fiber CSA in Parasternal Muscle Fibers.” (2011) *FASEB J.* 25, 653.6.
8. **Smith BK**, Martin AD, Vandeborne K, Davenport PW. “Effect of Tracheal Occlusion on Diaphragm Fiber Remodeling.” (2010) *American Journal of Respiratory and Critical Care Medicine*, 179, A4385.
9. Mathur S, **Smith BK**, Senesac C, Lott DJ, Walter GA, Martin AD, Vandeborne K. “Respiratory and Lower Limb Muscle Strength in Boys with Duchenne Muscular Dystrophy.” (2009) *Physiotherapy Canada*, 61, S68.
10. **Smith BK**, Mathur S, Hotchkiss M, Ye F, Martin AD, Vandeborne K, Davenport PW. “Diaphragm Remodeling Following Repeated Bouts of Acute Tracheal Occlusion.” (2009) *American Journal of Respiratory and Critical Care Medicine*, 178, A4207.
11. **Smith BK**, Huang T, Deoghare, Martin AD. “Rate of Inspiratory Pressure Development and Maximal Inspiratory Pressure in Ventilated and Healthy Adults.” (2009) *American Journal of Respiratory and Critical Care Medicine*, 178, A3802.
12. Martin AD, **Smith BK**, Davenport, PW, Banner MJ, Gabrielli A. “Effects of Inspiratory Muscle Strength Training on Loaded Breathing in Difficult to Wean Patients.” (2009) *American Journal of Respiratory and Critical Care Medicine*, 178, A3801.
13. **Smith BK**, Martin AD. “Widespread Presence of ICU-Acquired Weakness in Patients who Require Prolonged Mechanical Ventilation.” (2008) *American Journal of Respiratory and Critical Care Medicine*, 177, A500.
14. **Kellerman BA**, Martin D. “The Role Of Inspiratory Muscle Strength In Predicting Six-Minute Walk Distance In Adults With Severe Obstructive Lung Disease.” (1998) *Physical Therapy*, 78, 5, S3.
15. **Kellerman BA**, Martin D & Davenport PW. The Effect of Inspiratory Muscle Strength Training on Magnitude Estimation (ME) of Resistive Loads (R) in Healthy Adults. (1998) *FASEB Journal*, 12, 2, A785.

16. **Kellerman BA**, Irrgang J, Delitto A, VanSwearingen J, Ali M, Scarlett C, Valentino J. Integration of Computerized Documentation To Quantify Treatment Efficacy And Promote Clinical Research. (1996) *Physical Therapy*, 76, 5, S53.

LECTURES, SPEECHES, POSTERS PRESENTED AT PROFESSIONAL CONFERENCES

International

1. “Respiratory Function in the Centronuclear Myopathies and X-Linked Myotubular Myopathy.” ZNM Family Conference, Neidernhausen, Germany. May 7, 2016. Invited Talk.
2. “Emerging Therapies in Pompe Disease: Diaphragm Pacing and Gene Therapy.” Association for Glycogen Storage Disease-UK, Wychwood Park, Weston, Cheshire, UK. October 19, 2014. Invited Talk.
3. “Respiratory Muscle Stress Testing in Ventilator-Dependent Pediatric Neuromuscular Disease: Solid Endpoint?” 203rd European Neuromuscular Centre: Respiratory Pathophysiology in Congenital Onset Neuromuscular Disease: Implications for Proactive Care and Clinical Research, Naarden, Netherlands. December 13-5, 2013. Invited Talk.
4. **Smith BK**, Corti M, Lawson LA, Byrne BJ. “Phrenic motor unit dysfunction in late-onset Pompe disease.” *Platform Presentation*. International Glycogen Storage Disease Conference, Heidelberg, Germany. November 29, 2013.
5. “Emerging Therapies for Ventilatory Insufficiency in Pompe Disease.” Association for Glycogen Storage Disease-UK, Wyboston Lakes, Bedfordshire, UK, September 2012. Invited Talk.
6. “Ventilatory Muscle Training and Plasticity in Mechanically-Ventilated Patients.” University of Toronto Cardiorespiratory Physiotherapy Research Division, West Park Hospital, Toronto, Ontario. August 3, 2011. Invited Talk.
7. Deoghare HV, Huang T, **Smith BK**, Davenport PW, Gabrielli A, Banner MJ, Caruso L, Layon AJ, Martin AD. “Catecholamine and Heart Rate Variability Changes During Failed Spontaneous Breathing Trials in Difficult to Wean Patients.” *Poster Presentation*. American Thoracic Society Meeting. Toronto, ON. May 19, 2008.
8. Huang T, Deoghare H, **Smith BK**, Baz MA, Gonzalez-Rothi R, Harman EM, Martin AD. “Factors Predicting Weaning Outcome in Difficult to Wean Adult Patients.” *Poster Presentation*. American Thoracic Society Meeting. Toronto, ON. May 19, 2008.

National

1. **Smith BK**, Lawson LA, Marcus J, Islam S, Corti M, Collins SW, Byrne BJ. Improved Diaphragm Descent in Children with Pompe Disease Following Intramuscular Gene Therapy. Platform Presentation. APTA Combined Sections Meeting, San Antonio, TX. February 17, 2017.
2. **Smith BK**, Renno MS, Corti M, Cousins C, Wilbur D, Thompson G, Byrne BJ. Dynamic Thoracic MRI to Estimate Lung Volume in Duchenne Muscular Dystrophy. *Poster Presentation*. New Directions in Skeletal Muscle Biology, Orlando, Florida. June 30, 2016.
3. “Preserving Ventilation in Neuromuscular Disease: Diaphragm Pacing Approach.” Educational Symposium. In Experimental Biology 2016, San Diego CA. April 5, 2016. Invited Talk.

4. “Research Planning, Design, and Data Collection.” Educational Session: I’ve Got A Great Idea. Acute Care Research from Planning to Publication. In APTA Combined Sections Meeting, Anaheim, CA, February 19, 2016. Invited Talk.
5. “Regenerative Rehabilitation Approaches in Pompe Disease.” Educational Session: PTJ Symposium on Regenerative Rehabilitation. Educational Session. In APTA Combined Sections Meeting, Anaheim, CA, February 18, 2016. Invited Talk.
6. “Management of Hypoventilation in Neuromuscular Disease: Rehabilitation Science Approach.” Rehabilitation Seminar Series, State University of New York at Buffalo, Buffalo, NY. September 28, 2015. Invited Talk.
7. “Take a Deep Breath: Managing Breathing for Today and Tomorrow.” 2015 MTM-CNM Family Conference, July 25, 2015. Invited Talk.
8. Vernot V, Byrne BJ, Martin AD, Lawson LA, Collins SC, **Smith BK**. “Volume compensation to inspiratory loads improves after gene therapy for Pompe disease.” *Poster Presentation*. WORLD Lysosomal Storage Disease Network, Orlando, Florida. February 10, 2015.
9. “Research Mentorship and Networks.” APTA Combined Sections Meeting, Indianapolis, IN, February 7, 2015. Invited Talk.
10. Mehta G, Byrne B, Martin D, Fuller D, **Smith BK**. “Respiratory plasticity after diaphragm pacing: power spectral analysis.” *Platform Presentation*. APTA Combined Sections Meeting, Indianapolis, IN. February 6, 2015.
11. “Respiratory Outcome Measures for Ventilator-Dependent Duchenne Muscular Dystrophy.” Outcomes DMD: Parent Project Muscular Dystrophy Preconference Meeting, Chicago, IL. June 26, 2014. Invited Talk.
12. “Ventilatory Compromise and Cough Impairments in Pompe Disease.” Experimental Biology 2014, San Diego, CA. April 30, 2014. Invited Talk.
13. “Making the Case for Respiratory Muscle Training.” APTA Combined Sections Meeting, Las Vegas, NV, February 5, 2014. Invited Talk.
14. “Managing Critically Ill Patients in the ICU: Challenges and Potential Solutions.” APTA Combined Sections Meeting, Las Vegas, NV, February 4, 2014. Invited Talk.
15. “Clinical Trial of Gene Therapy to the Diaphragm for Pompe Disease: Past Lessons Direct Future Steps.” Myotubular Myopathy – Centronuclear Myopathy Family Conference, Bloomington, MN, July 28, 2013. Invited Talk.
16. **Smith BK**, Lawson, LA, Martin AD, Collins S, Byrne BJ. “Inspiratory muscle conditioning improves coordination but not strength prior to diaphragm gene therapy for infantile Pompe disease.” *Platform Presentation*. APTA Combined Sections Meeting, San Diego, CA. January 23, 2013.
17. “An Alternative Management Strategy for Ventilatory Failure in Pompe Disease: Emphasis on Recovery.” Second Regenerative Rehabilitation Symposium, University of Pittsburgh, Pittsburgh, PA, November 12, 2012. Invited Talk.
18. **Smith BK**, Collins SW, Martin AD, Mah CS, Lawson LA, Islam S, Conlon TJ, Phillips D, Byrne BJ. “Phase I/II Trial of AAV1-CMV-GAA Gene Therapy in Pompe Disease: Initial Ventilatory Outcomes.”

Platform Presentation. New Directions in Biology and Disease of Skeletal Muscle Conference, New Orleans, LA. June 20, 2012.

19. Smith BK. “Lower Extremity Strength Training after Lung Transplantation: Six-Month Outcomes.” Fifth Annual International ICU Physical Medicine and Rehabilitation Symposium, San Francisco, CA. May 2012. Invited Talk.
20. “Initial Ventilatory Outcomes: Phase I/II Trial of Adeno-associated Virus Acid alpha-Glucosidase (AAV-GAA) Diaphragm Gene Therapy for Ventilatory Failure in Pompe Disease.” Congenital Muscular Dystrophy Symposium, Washington, D.C. February 17, 2012. Invited Talk.
21. **Smith BK**, Franceschi A, Martin, AD. “Do Recipients of Lung Transplantation Retain the Lower Extremity Strength Gains Achieved During Acute Rehabilitation?” *Platform Presentation.* APTA Combined Sections Meeting, Chicago, IL. February 10, 2012.
22. Bueno D, **Smith BK**. “Increased Gait Velocity And Improvements In Functional Walking Category Following Reserve Velocity Gait Training: A Pilot Study.” *Poster Presentation.* APTA Combined Sections Meeting, Chicago, IL. February 10, 2012.
23. Blanchard E, **Smith BK**. “Physical Therapy Interventions for a Patient with Carnitine Palmitoyltransferase II Deficiency (Myopathic Form): a Case Report.” *Poster Presentation.* APTA Combined Sections Meeting, Chicago, IL. February 9, 2012.
24. **Smith BK**, S. Collins, A. Martin, C. Mah, L. Lawson, S. Islam, T. Conlon, D. Phillips, B. Byrne. “Phase I/II Trial of Diaphragm Gene Therapy for Pompe Disease: Initial Ventilatory Outcomes.” *Poster and Platform Presentations.* 10th Annual Gene Therapy Symposium, Sonoma, CA. November 17, 2011.
25. **Smith BK**, Franceschi A, Huang T, Deoghare H, Martin DA. “Lower Extremity Strength Training Following Acute Lung Transplantation: Preliminary Report.” *Poster Presentation.* APTA Combined Sections Meeting, San Diego, CA. February 20, 2010.
26. **Smith BK**, Martin AD, Vandenborne K, Davenport PW. Effect of Tracheal Occlusion on Diaphragm Fiber Remodeling. *Poster Presentation.* American Thoracic Society Meeting, New Orleans, LA. May 18, 2010.
27. **Smith BK**, Huang T, Deoghare, Martin AD. “Rate of Inspiratory Pressure Development and Maximal Inspiratory Pressure in Ventilated and Healthy Adults.” *Poster Presentation.* American Thoracic Society Meeting, San Diego, CA. May 18, 2009.
28. **Smith BK**, Huang T, Deoghare H, Martin AD. “Inspiratory Training Improves Sub-Maximal Pressure Development in Adults with Mechanical Ventilation.” *Platform Presentation.* APTA Combined Sections Meeting. Las Vegas, NV. February 11, 2009.
29. **Smith BK**, Martin AD. “Strength Characteristics of Critically Ill Patients Requiring Prolonged Mechanical Ventilation.” *Poster Presentation.* APTA Combined Sections Meeting. Nashville, TN. February 8, 2008.
30. **Smith BK**, Hines, AP. “Measuring Inter-Rater Reliability of the Egress Test.” *Poster Presentation.* American Physical Therapy Association Scientific Meeting and Exposition. Orlando, FL. June 24, 2006.
31. **Smith BK**, Raybourn M, Field D, Austermann MA. “Building an Acute Care Physical Therapy

Electronic Medical Record (EMR) Across the Age Continuum.” *Poster Presentation*. American Physical Therapy Association Scientific Meeting and Exposition. Orlando, FL. June 23, 2006.

32. **Kellerman, BA**, Martin D, Davenport PW. “The Role Of Inspiratory Muscle Strength In Magnitude Estimation Of Resistive Loads.” *Poster Presentation*. Federation of Applied Science and Experimental Biology. San Francisco, CA. April 22, 1998.
33. **Kellerman BA**, Martin AD. “The Role Of Inspiratory Muscle Strength In Predicting Six- Minute Walk Distance In Adults With Severe Obstructive Lung Disease.” *Poster Presentation*. American Physical Therapy Association Scientific Meeting and Exposition. Orlando, FL. June 7, 1998.
34. **Kellerman BA**, Brown T. “The Role of Physical Therapy In The Multidisciplinary Treatment of Necrotizing Fasciitis.” *Platform Presentation*. APTA Combined Sections Meeting. Atlanta, GA. February 16, 1996.
35. **Kellerman BA**, Irrgang J, Delitto A, VanSwearingen J, Ali M, Scarlett C, Valentino J. “Integration Of Computerized Documentation To Quantify Treatment Efficacy And Promote Clinical Research.” *Platform Presentation*. American Physical Therapy Association Scientific Meeting and Exposition. Minneapolis, MN. June 15, 1996.

Regional

1. **Smith BK**, Attia S, Darragh B, Martin AD. “Training Adaptations in Quadriceps Torque Generation and Decay in Lung Transplant Recipients.” *Poster Presentation*. Southeastern American College of Sports Medicine Conference. Birmingham, AL. February 13, 2009.
2. Darragh B, **Smith BK**, Attia SM, Martin AD. “Ratio of Hamstring to Quadriceps Torque Values in Lung Transplant Recipients.” *Poster Presentation*. Southeastern American College of Sports Medicine Conference. Birmingham, AL. February 13, 2009.
3. Attia S, **Smith BK**, Mathur S, Ye F, Hotchkiss MT, Darragh BD, Martin AD, Davenport PW, Vandenberg K. “Satellite Cell Activation in the Diaphragm Following Tracheal Occlusion in Rats.” *Poster Presentation*. Southeastern American College of Sports Medicine Conference. Birmingham, AL. February 12, 2009.

State

1. “Exercise and Breathing in Pompe Disease.” Muscular Dystrophy Association of Central Florida, Orlando, FL. April 23, 2016. Invited Talk.
2. “Physical Therapy and Exercise Training for Adults with Pompe Disease.” Muscular Dystrophy Association of Florida, Orlando, FL. October 30, 2011. Invited Talk.
3. “Cardiopulmonary Update.” 4-Week Clinical Inservice Series, Baptist Health Systems, Pensacola, FL. January and February, 2004. Invited Talk.

Local

1. “Evaluation and Rehabilitation in Chronic Ventilatory Insufficiency.” T32 Neuromuscular Plasticity Symposium, Gainesville FL. March 12, 2015. Invited Talk.
2. “Ventilatory Muscle Strength and Functional Outcomes in Mechanically-Ventilated Patients.” Rehabilitation Research Seminar Series, University of Florida, Gainesville, FL. March 14, 2012. Invited Talk.

3. “Respiratory Overload Training and Muscle Plasticity.” Interdisciplinary Program Seminar Series, University of Florida, Gainesville, FL. March 15, 2011. Invited Talk.
4. “Inspiratory muscle training and de-training effects on strength and ventilatory function in an infant with Pompe disease.” Neuromuscular Plasticity Noons Seminar, University of Florida, Gainesville, FL. July 29, 2010. Invited Talk.
5. “Lower Extremity Strength Training Following Lung Transplantation: Preliminary Analysis.” Neuromuscular Plasticity Noons Seminar, University of Florida, Gainesville, FL. June 26, 2009
“Exercise After Stroke.” University of Florida Stroke Support Group. Gainesville, FL. April 16, 2009. Invited Talk.
6. **Smith BK**, Huang T, Deoghare H, Martin AD. “Inspiratory Pressure Development and Maximal Inspiratory Pressure in Healthy and Ventilated Adults.” *Poster Presentation*. 4th Annual Neuromuscular Plasticity Symposium, University of Florida, Gainesville, FL. December 5, 2008.
7. **Smith BK**, Mathur S, Hotchkiss M, Ye F, Vandeborne K, Martin AD, Davenport PW. “Histological Features of the Diaphragm Following Acute Bouts of Tracheal Occlusion.” *Poster Presentation*. 3rd Annual Neuromuscular Plasticity Symposium, University of Florida, Gainesville, FL. January 31, 2008.
8. “Inspiratory Muscle Training in Patients with Prolonged Mechanical Ventilation.” University of Florida Capital Campaign, Department of Physical Therapy Alumni Event, Gainesville, FL. September 27, 2007. Invited Talk.
9. **Smith BK**, Martin, AD. “Inspiratory Muscle Training Improves Strength in Difficult to Wean Patients.” *Poster Presentation*. 20th Annual College of Public Health and Health Professions Research Day. Gainesville, FL. April 12, 2007.
10. “Building Your Professional Toolbox.” Physical Therapist Assistant Commencement Ceremony, Pensacola Junior College, Pensacola, FL. June 24, 2007. Invited Talk.

CONTRACTS AND GRANTS

Current Support

Title: Diaphragm Pacing and Rehabilitation in Pompe Disease (R21HD090752)

Participation: Principal Investigator

Agency: National Institute of Child Health and Human Development (NICHD)

Funding Period: September 2016 – August 2018

Title: A Clinical Assessment Study in X-Linked Myotubular Myopathy Subjects (INCEPTUS)

Participation: Principal Investigator

Agency: Audentes Therapeutics

Funding Period: August 2016 – July 2018

Title: Phase II Study of AAV9-GAA Gene Transfer in Pompe Disease (U01HL121842)

Participation: Co-Investigator (*B. Byrne, Principal Investigator.*)

Agency: National Heart, Lung, and Blood Institute (NHLBI)

Funding Period: September 2015 – February 2019

Title: Dynamic Respiratory Muscle Function in Late-Onset Pompe Disease (NCT02354664)

Participation: Principal Investigator
Agency: BioMarin Pharmaceutical Foundation
Funding Period: November 2015 – January 2017

Title: Respiratory Muscle Function in Untreated X-linked Myotubular Myopathy (00098427)
Participation: Principal Investigator
Agency: Audentes Therapeutics, Inc.
Funding Period: July 2015 – June 2018

Title: A Study of Respiratory Muscle Strength, including Effort-Independent Measures, in Subjects with Late-Onset Pompe Disease (00096262)
Participation: Principal Investigator
Agency: BioMarin Inc.
Funding Period: April 2015 – April 2018

Title: Diaphragm Pacing and Quality of Life in Patients with Pompe Disease
Participation: Principal Investigator
Agency: Acid Maltase Deficiency Association
Funding Period: March 2014- February 2017

Completed Support

Title: Measures of Electrophysiological and Functional Recovery After Diaphragm Pacing in Pompe Disease (00090529)
Participation: Principal Investigator
Agency: University Of California San Diego
Funding Period: June 2014 – May 2015

Title: Intrapleural Microdystrophin Gene Therapy for Clinical Translation.
Participation: Co-Investigator (*B. Byrne, Principal Investigator.*)
Agency: Department of Defense (11265471)
Funding Period: August 2013 - July 2016.

Title: Clinical and Electrophysiological Assessment of Respiratory Function in Pompe Disease (00084590)
Participation: Principal Investigator
Agency: Acid Maltase Deficiency Association
Funding Period: April 2012 – September 2013

Title: Rehabilitation Research Career Development Program (K12 HD055929).
Participation: Scholar (75% effort). (*K. Ottenbacher, Principal Investigator.*)
Agency: National Institutes of Health (NICHD).
Funding Period: January 2011 – December 2013

Title: Safety Study of Recombinant Adeno-Associated Virus Acid Alpha-Glucosidase to Treat Pompe Disease
Participation: Sub-Investigator (50% effort). (*B. Byrne, Principal Investigator.*)

Agency: National Institutes of Health (NHLBI-GTRP)
Funding Period: November 2010 – November 2015

Title: Interdisciplinary Pre-doctoral Training in Rehabilitation and Neuromuscular Plasticity. (T32 HD043730)

Participation: Predoctoral trainee (*K. Vandenborne, Principal Investigator.*)

Agency: National Institutes of Health (NICHD), 2003-2013

Funding Period: 2007-10

UNIVERSITY GOVERNANCE AND SERVICE

University

2017-	Committee on Committees
2014-	Advisory Board, University of Florida Center for Respiratory Research and Rehabilitation
2012-3	Parking and Transportation Committee

College

2011-12	PHHP Research Day Abstract Reviewer
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Department/Center

2016-	Admissions Committee Member
2012-	Professionalism Committee (Committee Chair, 2014-present);
2014-6	Scholarship Committee Member
2015-6	Curriculum Review Task Force Member
2012-4	DPT Transition Task Force Member
2011	Research Space Utilization Task Force Member
2012	Internship Length Task Force Member

CONSULTATIONS OUTSIDE THE UNIVERSITY

- Capricor Therapeutics, New York, NY 2017
Scientific advisor on respiratory muscle testing in Duchenne muscular dystrophy
- Audentes Therapeutics, Washington, DC 2016
Trained NIH respiratory therapists in standardized pediatric muscle testing
- Sanofi Corporation, Gainesville, FL 2015
Developed pulmonary function and exercise testing manuals in pediatric Niemann-Pick Disease
- Sanofi Corporation, Gainesville, FL 2013
Developed pulmonary function testing manuals for adult Pompe disease

EDITOR OF SCHOLARLY JOURNALS, SERVICE ON EDITORIAL ADVISORY BOARDS, REVIEWER FOR SCHOLARLY JOURNALS

Editorial Advisory Boards

- Physical Therapy Journal Editorial Board Member, January 2016-present

Reviewer for Scholarly Journals

- Journal of Acute Care Physical Therapy (formerly Acute Care Perspectives), 2009-present
- Physical Therapy Journal, 2010-present
- Respiratory Care Journal, 2012-present
- Archives of Physical Medicine and Rehabilitation, 2012-present
- Lung, 2014-present
- Critical Care, 2014-present
- Muscle & Nerve, 2016-present
- Physiological Reviews, 2017

MEMBERSHIPS

National

- American Physical Therapy Association. Member since 1993.
 - *Section Member* – Cardiopulmonary (1995-1998, 2007-present), Acute Care (1995-present), Research (1996-8, 2007-present)
- Member- American Society for Gene and Cell Therapy, 2013-4
- Member- American Thoracic Society, 2008-13
- Member- American Congress of Rehabilitation Medicine, 2009-10
- Member- Arthritis Health Professionals of Western Pennsylvania, 1994 to 1996

Regional, State, or Local

- Member- Florida Physical Therapy Association, 2007-present

ACTIVITIES IN THE PROFESSION

National

- American Physical Therapy Association.
 - *Acute Care Section Research Committee: Member*- 2011, *Committee Chair*- 2011- present
 - *Acute Care Section Nominating Committee: Member*- 2008-11, *Committee Chair*- 2010-11
 - *Volunteer Mentor*- Members Mentoring Members, 2006-2010
 - *Volunteer Contributor*- Hooked on Evidence, 2008-2012
 - *Reviewer*- PTNow, 2015-present
- *Member*, Duchenne Pulmonary Outcomes Work Group, Parent Project Muscular Dystrophy, 2016.
- *Member*, Regenerative Rehabilitation Work Group, APTA's Frontiers in Rehabilitation Science and Technology (FiRST) Initiative, 2013-present.
- *Member Ad-Hoc Respiratory Committee*, SCI NeuroRecovery Network, Christopher and Dana Reeve Foundation, 2011-2013.

State

- Family Volunteer, Camp Boggy Creek, Eustis, FL, 2013-present.

Local

- *Chairperson*- Gainesville sub-district of Northern Florida Physical Therapy Association, 1996-1997
- *Continuing Education Committee Member*- Southwestern Pennsylvania Physical Therapy Association, 1993 to 1996

HONORS

National

- Margaret L. Moore Award for Outstanding New Faculty Member, American Physical Therapy Association, 2016
- New Investigator of the Month, American Society of Gene & Cell Therapy, September 2013
- Excellence in Research Award, American Society of Gene & Cell Therapy, 2013
- Cardiovascular and Pulmonary Section Research Platform Award, Combined Sections Meeting APTA, 2013
- Travel Award, UC Davis 10th Annual Gene Therapy Symposium, 2011
- Featured Researcher, Foundation for Physical Therapy, April 2011
- Cardiovascular and Pulmonary Section Research Poster Award, Combined Sections Meeting APTA, 2010
- Promotion of Doctoral Studies II Scholarship. Foundation for Physical Therapy. Endowed by the Cardiovascular and Pulmonary Section APTA, in honor of Scot C. Irwin, PT, DPT, CCS, 2009-10
- Promotion of Doctoral Studies I Scholarship. Foundation for Physical Therapy. Endowed by the Cardiovascular and Pulmonary Section APTA, in honor of Scot C. Irwin, PT, DPT, CCS, 2008-9
- American Physical Therapy Association, Mary McMillan Post-Professional Scholarship, 1998
- University of Pittsburgh Medical Center Tuition Remission Scholarship, 1994
- Omicron Delta Kappa Leadership Honor Society, Member Since 1991

Local

- Outstanding Young Alumnus Award, University of Florida Department of Physical Therapy, 2015-6
- Graduate Research Grant, College of PHHP Research Day, University of Florida, 2009
- Outstanding Poster Presentation, College of PHHP Research Day, University of Florida, 2007
- University of Florida College of Health Professions, Charlotte Liberty Scholarship, 1997
- Group Assisted Training of Research Mentorship Award, University of Florida and Howard Hughes Medical Institute, 2008-9