

**KAREN WHEELER HEGLAND, PH.D.**

**UPDATED: JUNE 2020**

**WORK ADDRESS:**

University of Florida  
Department of Speech Language and Hearing Sciences  
Box 100174  
Gainesville, FL 32611

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**EDUCATIONAL BACKGROUND:**

**University of Florida**, Undergraduate School, Department of Communication Sciences and Disorders, Bachelors of Arts Degree (B.A.) in Communication Sciences and Disorders (Awarded in 2001).

**University of Florida**, Graduate School, Department of Communication Sciences and Disorders, Masters of Arts Degree (M.A.) in Speech-Language Pathology (Awarded in 2003).

**University of Florida**, Graduate School, Department of Communication Sciences and Disorders, Doctor of Philosophy (Ph.D.) in Speech-Language Pathology, with emphasis in the physiology and neuroanatomy of swallowing (Awarded in August, 2006).

**NIH T-32 Post-Doctoral Fellow, University of Florida**, Departments of Neurology and Physiological Sciences (Fall 2008 – Fall 2009)

**ACADEMIC HONORS:**

Alpha Lambda Delta National Honor Society  
Golden Key National Honor Society  
National Society of Collegiate Scholars  
Florida Academic Scholarship  
Thomas Abbott Award-Scholarship  
Grinter Scholarship

2<sup>nd</sup> Place New Investigator Award, Dysphagia Research Society 2010

1<sup>st</sup> Place Scientific Abstract: Poster Presentation, Dysphagia Research Society 2010

Dean's Citation Paper Award 2012

Dean's Citation Paper Award 2016

University Term Professorship 2017

2<sup>nd</sup> Place Scientific Abstract: Oral Presentation, Dysphagia Research Society 2018

**PROFESSIONAL POSITIONS:**

Associate Professor with Tenure and Program Director, University of Florida, Department of Speech Language and Hearing Sciences (January 2021 - present)

Associate Professor with Tenure, University of Florida, Department of Speech Language and Hearing Sciences (July 2018 - present)

Assistant Professor, University of Florida, Department of Speech Language and Hearing Sciences (August 2012 – June 2018)

Research Assistant Professor, University of Florida, Department of Physiological Sciences (June 2010 – July 2012)

Health Science Specialist, Brain Rehabilitation Research Center, Malcom Randall VA Medical Center, Gainesville, FL (Fall 2009 – Fall 2011)

Assistant Professor, Arizona State University, Department of Speech and Hearing Sciences (Fall 2006 – Fall 2007)

Pre-doctoral Fellow, Malcolm Randall Veterans Affairs Hospital (Fall 2004 – Summer 2006)

Speech-Language Pathology Clinical Fellow, Malcolm Randall Veterans Affairs Hospital (Fall 2003 - Fall 2004)

#### **CERTIFICATION AND ORGANIZATIONS:**

- 2005 Certified speech-language-pathologist (CCC-SLP)
- 2005 Member of the American Speech, Language, Hearing Association (*ASHA*)
- 2009 Member of the Society for Neuroscience (SfN)
- 2009 Member of the American Physiological Society (APS)
- 2010 Member of the International Society for the Advancement of Respiratory Psychophysiology (ISARP)
- 2015 Member of the Dysphagia Research Society (DRS)
- 2015 Member of the Movement Disorders Society (MDS)
- 2016 – 2018 President of the International Society for the Advancement of Respiratory Psychophysiology (ISARP)
- 2016 Chair, Springer Scholarship Committee, Dysphagia Research Society
- 2018 – 2020 Secretary/treasurer of the International Society for the Advancement of Respiratory Psychophysiology (ISARP)
- 2018 Conference Chair, International Society for the Advancement of Respiratory Psychophysiology (ISARP)
- 2018 Chair, Springer Scholarship Committee, Dysphagia Research Society
- 2018 Member, Conference planning committee, Dysphagia Research Society
- 2019 Member, Abstract Committee, Dysphagia Research Society

#### **TEACHING EXPERIENCE**

2004 Speech Anatomy and Physiology  
 2005 Speech Anatomy and Physiology  
 2006 Anatomical and Physiological Bases of Speech  
 2007 Swallowing disorders across the lifespan  
 2007 Anatomical and Physiological Bases of Speech  
 2008 Swallowing Disorders (co-taught with N. Musson)  
 2009 Motor Speech Disorders  
 2013 Speech Anatomy and Physiology  
 2013 Graduate Voice Disorders (co-taught with J. Wingate)  
 2014 Speech Anatomy and Physiology  
 2014 Speech Disorders  
 2014 Voice Disorders  
 2015 Neural bases of communication  
 2015 Speech Disorders  
 2015 Motor Speech Disorders  
 2016 Neural bases of communication  
 2016 Motor Speech Disorders  
 2017 Neural bases of communication  
 2017 Motor Speech Disorders  
 2018 Neural bases of communication  
 2018 Motor Speech Disorders  
 2019 Neural bases of communication  
 2019 Motor Speech Disorders  
 2020 Neural bases of communication  
 2020 Motor Speech Disorders  
 2020 Voice Disorders

**DEPARTMENT & COLLEGE SERVICE**

Admissions committee	2013 – 2015
Web page committee	2013 – 2015
Search committee	2014 – 2015
Admissions committee	2016 – 2017
Research review committee (Center for Movement Disorders and Neurorestoration)	2015 – present
Chair, Admission committee	2018 – present
Member, Tenure & Promotion Committee	2019 - present

**UNIVERSITY SERVICE**

Member, Institutional Review Board (IRB 01)	2015 - present
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**PEER-REVIEWED PUBLICATIONS**

**Wheeler, K.M.,** Collins, S.P., & Sapienza, C.M. (2005). Relationship of the Voice Handicap Index and specific acoustic measures of mildly disordered voice production. *Journal of Voice*, 20(2), 308-317.

Sapienza, C.M. & **Wheeler, K.M.** (2006). Respiratory Muscle Strength Training: Functional Outcomes versus Plasticity. *Seminars in Speech and Language*, 27(4), 236-244.

**Wheeler, K.M.,** Chiara, T. & Sapienza, C.M. (2007). Surface electromyographic activity of the submental muscles during swallow and expiratory pressure threshold training tasks. *Dysphagia*, 22(2), 108-116.

**Wheeler, K.M.,** Rosenbek, J. & Sapienza, C. (2008). Submental sEMG and hyoid movement during Mendelsohn maneuver, Effortful Swallow, and Expiratory muscle strength training. *Journal of Speech Language and Hearing Research*, 51(5) 1072-1087.

**Wheeler, K.M.,** Huber, J., Pitts, T., Sapienza, C.M. (2009). Lung Volume During Swallowing: Single Bolus Swallows in Healthy Young Adults. *Journal of Speech Language and Hearing Research*, 52(1), 178-187.

Frymark, T., Schooling, T., Mullen, R., **Wheeler-Hegland, K.,** Ashford, J., McCabe, D., Musson, N. & Smith-Hammond, C. (2009). Evidence-Based Systematic Review: Oropharyngeal Dysphagia Behavioral Treatments. Part I - Background and Methodology. *Journal of Rehabilitation Research and Development*, 46(2), 175-183.

**Wheeler-Hegland, K.,** Ashford, J., Frymark, T., McCabe, D., Mullen, R., Musson, N., Schooling, T., & Smith-Hammond, C. (2009). Evidence-Based Systematic Review: Oropharyngeal Dysphagia Behavioral Treatments. Part II – Impact on Dysphagia Treatment on Normal Swallow Function. *Journal of Rehabilitation Research and Development*, 46(2), 185-195.

Ashford, J., McCabe, D., **Wheeler-Hegland, K.,** Frymark, T., Mullen, R., Musson, N., Schooling, T. & Smith-Hammond, C. (2009). Evidenced-Based Systematic Review: Oropharyngeal Dysphagia Behavioral Treatments. Part III – Impact on Dysphagia Treatment on Neurologic Populations. *Journal of Rehabilitation Research and Development*, 46(2), 195-204.

McCabe, D., Ashford, D., **Wheeler-Hegland, K.,** Frymark, T., Mullen, R., Musson, N., Schooling, T. & Smith-Hammond, C. (2009). Evidenced-Based Systematic Review: Oropharyngeal Dysphagia Behavioral Treatments. Part IV– Impact of Dysphagia Treatment on Individuals with Head & Neck Cancer. *Journal of Rehabilitation Research and Development*, 46(2), 204-215.

**Wheeler-Hegland, K.,** Frymark, T., Schooling, T., Ashford, J., McCabe, D., Musson, N. & Smith-Hammond, C. (2009). Evidence-Based Systematic Review: Oropharyngeal Dysphagia Behavior Treatments. Part V - Applications for Clinicians and Researchers. *Journal of Rehabilitation Research and Development*, 46(2), 215-222.

Vovk, A., Davenport, P., **Wheeler-Hegland, K.**, Morris, K.F., Sapienza, C.M., Bolser, D.C. (2010). Swallow Pattern Generator Reconfiguration of the Respiratory Neural Network. *Perspectives on Swallowing and Swallowing Disorders (Dysphagia)*, March 2010; 18: 3 - 12.

Pitts, T., **Wheeler-Hegland, K.**, Davenport, P.W. (2010). Event-Related potentials and and swallow system. *Perspectives on Swallowing and Swallowing Disorders (Dysphagia)*, March 2010, 19: 21- 25.

**Wheeler-Hegland, K.**, Pitts, T., & Davenport, P. (2011). Scalp topography and peak morphology of the pharyngeal sensory evoked potential. *Dysphagia*, epub ahead of print.

**Wheeler-Hegland, K.**, Huber, J., Pitts, T., Davenport, P.W. & Sapienza, C. (2011). Lung Volume Measured during Sequential Swallowing in Healthy Young Adults. *Journal of Speech, Language and Hearing Research*, October, epub ahead of print.

Troche MS, Okun MS, Rosenbek JC, Musson N, Fernandez HH, Rodriguez R, Romrell J, Pitts T, **Wheeler-Hegland KM**, Sapienza CM. (2010). Aspiration and swallowing in Parkinson disease and rehabilitation with EMST: a randomized trial. *Neurology*, 75(21), 1912-1919.

**Wheeler-Hegland, K.**, Pitts, T., & Davenport, P.W. (2011). Cortical gating of oropharyngeal sensory stimuli. *Frontiers in Respiratory Physiology*, 1:167.

**Wheeler Hegland, K.**, Pitts, T., Bolser, D., & Davenport, P.W. (2011). Urge to cough with voluntary suppression following mechanical pharyngeal stimulation. *Bratslavia Medical Journal*, 112(3); 109-114.

**Wheeler Hegland, K.**, Bolser, D. & Davenport, P.W. (2012). Voluntary modulation of reflexive cough. *Journal of Applied Physiology*, 113(1):39-46.

**Hegland, K.W.**, Troche, M.T. & Davenport, P.W. (2013). Cough expired volume and airflow rates during sequential induced cough. *Frontiers in Respiratory Physiology*, 4 (167), 1-5.

**Hegland, K.W.** & Sapienza, C.M. (2013). SLP's role in the evaluation and treatment of cough function. Invited. *Perspectives on Swallowing and Swallowing Disorders (Dysphagia)*, SIG 13.

Troche, M.S., Brandimore, A.E., Foote, K.F., Morishita, T., Chen, D., **Hegland, K.W.**, & Okun, M.S. (2013). Swallowing outcomes following unilateral STN vs. GPi surgery: A retrospective analysis. *Dysphagia*

**Hegland, K.W.**, Okun, M.O., & Troche, M.S. (2014). Sequential voluntary cough and aspiration or aspiration risk in Parkinson's disease. *Lung*, 192(4), 601 – 608.

Troche, M.S., Brandimore, A.E., Godoy, J. & **Hegland, K.W.** (2014). A framework for understanding shared substrates of airway protection. *Journal of Applied Oral Science*, 22(4), 251-60.

Chenivesse C, Chan PY, Tsai HW, **Wheeler-Hegland K**, Silverman E, von Leupoldt A, Similowski T, Davenport P.W. (2014) Negative emotional stimulation decreases respiratory sensory gating in healthy humans. *Respiratory Physiology and Neurobiology*.

Troche, M.S., Brandimore, A.E., Okun, M.S., Davenport, P.W. & **Hegland, K.W.** (2014). Decreased cough sensitivity and aspiration in Parkinson's disease. *Chest, June 26* (epub).

**Hegland, K.W.**, Troche, M.S., Brandimore, P.W. & Okun, M.S. (2014). Comparison of voluntary and reflex cough effectiveness in Parkinson's disease. *Parkinsonism and Related Disorders, Sept. 2014*, (epub).

Martinez-Ramirez D, Almeida L, Giugni JC, Ahmed B, Higuchi MA, Little CS, Chapman JP, Mignacca C, Wagle Shukla A, Hess CW, **Hegland KW**, Okun MS. (2015). Rate of aspiration pneumonia in hospitalized Parkinson's disease patients: a cross-sectional study. *BMC Neuro*, Jul 5;15:104. doi: 10.1186/s12883-015-0362-9.

Laciuga, H., Troche, M.S., Brandimore, A.E. & **Hegland, K.W.** (2016). The Analysis of Clinicians Perceptual Cough Evaluation. *Dysphagia, 31(4)*; 521-530.

**Hegland, K.W.**, Troche, M.S., Brandimore, A.E., Okun, M.S. & Davenport, P.W. (2016). Comparison of two methods for inducing reflex cough in patients with Parkinson's disease: Implications for neural control and clinical practice. *Dysphagia, 31(1)*; 66-73.

Pitts, T., **Hegland, K.W.**, Sapienza, C.M., Bolser, D.C., & Davenport, P.W. (2016). Alterations in oropharyngeal sensory evoked potentials (PSEP) with Parkinson's disease. *Respiratory Physiology and Neurobiology, 229*; 1-6. doi: 10.1016/j.resp.2016.04.004.

Higuchi M.A., Martinez-Ramirez D., Morita H., Topiol D., Bowers D., Ward H., Warren L., DeFranco M., Hicks J.A., **Hegland K.W.**, Troche M.S., Kulkarni S., Hastings E., Foote K.D., & Okun M.S. (2016). Interdisciplinary Parkinson's Disease Deep Brain Stimulation Screening and the Relationship to Unintended Hospitalizations and Quality of Life. *PLoS One, 11(5)*; e0153785. doi: 10.1371/journal.pone.0153785.

Brandimore, A.E., Troche, M.S., Huber, J.E. & **Hegland, K.W.** (2016). Respiratory kinematic and airflow differences between reflex and voluntary cough in healthy young adults. *Frontiers in Respiratory Physiology*.

**Hegland, K.W.**, Davenport, P.W., Brandimore, A.E., Singletary, F. & Troche, M.S. (2016). Rehabilitation of swallowing and cough function following stroke: An Expiratory Muscle Strength Training Trial. *Archives of Physical Medicine and Rehabilitation; 97(8)*; 1345-1351.

Tabor L.C., Rosado K.M., Robison R., **Hegland K.W.**, Humbert I.A., & Plowman EK. (2016). Respiratory training in an individual with amyotrophic lateral sclerosis. *Annals of Clinical and Translational Neurology, 3(10)*; 819-823.

Troche M.S., Schumann B., Brandimore A.E., Okun M.S. & **Hegland K.W.** (2016). Reflex Cough and Disease Duration as Predictors of Swallowing Dysfunction in Parkinson's Disease. *Dysphagia* 31(6); 757-764.

Tsai H.W., Fennelly K., **Hegland K.W.**, Adams S., Condrey J., Hosford J.L., & Davenport P.W. (2017). Cough physiology in elderly women with nontuberculous mycobacterial lung infections. *Journal of Applied Physiology*, 122(5); 1262-1266.

Brandimore, A.E., **Hegland, K.W.**, Okun, M.S., Davenport, P.W., & Troche, M.S. (2017). Voluntary up-regulation of reflex cough is possible in healthy older adults and Parkinson's disease. *Journal of Applied Physiology* 123(1); 19-26.

Barikroo A., **Hegland, K.W.**, Carnaby, G., Bolser, D.; Manini, T. & Crary, M. (2019). The Effects of Electrical Stimulation Pulse Duration on Lingual Palatal Pressure Measures During Swallowing in Healthy Older Adults. *Dysphagia*. 34(4); 529-539.

**Hegland K.W.**, Troche M. & Brandimore A. (2019). Relationship Between Respiratory Sensory Perception, Speech, and Swallow in Parkinson's Disease. *Mov Disord Clin Pract*; 6(3); 243-249.

Barikroo A., **Hegland, K.W.**, Carnaby, G., Bolser, D.; Manini, T. & Crary, M. (2019). Transcutaneous Electrical Stimulation on the Submental Area: The Relations of Biopsychological Factors with Maximum Amplitude Tolerance and Perceived Discomfort Level. *Dysphagia*.

Fullerton A, Mou Y, Silver N, Chheda N, Bolser D, & **Hegland K.** (2019). Respiratory-Swallow Pattern Following Total Laryngectomy. *Dysphagia*

Kim J, **Hegland K**, Vann W, Berry R, & Davenport PW. Measurement of maximum tongue protrusion force (MTPF) in healthy young adults. *Physiol Rep*. 7(13).

Ciucci, M., Hoffmeister, J., & **Wheeler-Hegland, K.** (2019, June). Management of Dysphagia in Acquired and Progressive Neurologic Conditions. *In Seminars in speech and language* (Vol. 40, No. 3, p. 203). NIH Public Access.

Tabor-Gray, L., Vasilopoulos, T., **Wheeler-Hegland, K.**, Wymer, J., & Plowman, E. K. (2020). Reflexive Airway Sensorimotor Responses in Individuals with Amyotrophic Lateral Sclerosis. *Dysphagia*, 1-9.

Patel,B., Legacy, J., **Hegland, K.W.**, Okun, M.S, & Herndon, N.E. (2020). A comprehensive review of the diagnosis and treatment of Parkinson's disease dysphagia and aspiration. *Expert Review of Gastroenterology & Hepatology*, 14:6, 411-424, DOI: 10.1080/17474124.2020.1769475

Chiu, S. Y., Tsuboi, T., **Hegland, K. W.**, Herndon, N. E., Shukla, A. W., Patterson, A., ... & Ramirez-Zamora, A. (2020). Dysarthria and Speech Intelligibility Following Parkinson's Disease

Globus Pallidus Internus Deep Brain Stimulation. *Journal of Parkinson's Disease*, (Preprint), 1-10.

Fullerton, A., Mou, Y., Silver, N., Chheda, N., Bolser, D. C., & **Wheeler-Hegland, K.** (2020). Impact of Tussigenic Stimuli on Perceived Upper Airway Sensation and Motor Cough Response Following Total Laryngectomy. *Frontiers in physiology*, 11.

#### **BOOK CHAPTERS**

Sapienza, C.M., **Wheeler., K.M.** & Chhabra, A. (2009). Pulmonary Function Evaluation. In: Blitzler (ed). *Neurologic Disorders of the Larynx*, 2nd edition.

**Wheeler, K.M.** (2009). Swallowing Disorders Associated with Palatal Myoclonus. In: Rosenbek and Jones (eds). *The Encyclopedia of Oropharyngeal Dysphagia in Rare Etiologies*.

**Hegland, K.W.** & Murray, T. (2013). Invited. Nonsurgical treatment: swallowing rehabilitation. In: Altmann (Ed.) *Otolaryngologic Clinics of North America*.

**Hegland, K.W.** & Fullerton, A.L. (2018). Invited. Aspiration: Swallowing. In: The SAGE Encyclopedia of Human Communication Sciences and Disorders.

#### **NATIONAL & INTERNATIONAL PRESENTATIONS**

**Wheeler, K.M.**, Shrivastav, R. & Sapienza, C.M. Predictability of the Voice Handicap Index relative to acoustic measures of voice. The Voice Foundations 33<sup>rd</sup> Annual Symposium: Care of the Professional Voice, Philadelphia, PA: June 2-6, 2004.

Sapienza, C.M. & **Wheeler, K.M.** Respiratory Muscle Strength Training. The Charleston Swallowing Conference, Charleston, SC: October 6-9, 2005.

**Wheeler, K.M.**, Chiara, T. & Sapienza, C.M. Training submental and infrahyoid muscles for swallowing using a respiratory threshold trainer. American Speech Language Hearing Association Convention, San Diego, CA: November 17-20, 2005.

**Wheeler, K.M.**, Martin-Harris, B., Brodsky, M., Thekkevalappil, S., & Sapienza, C.M. An Innovative Method of Measuring Hyoid Movement During Oropharyngeal Swallowing. Dysphagia Research Society, Scottsdale, AZ: March 23 – 26, 2006.

**Wheeler, K.M.**, Pitts, T., Huber, J. & Sapienza, C.M.. Lung volumes associated with swallowing different bolus volumes and consistencies. American Speech Language Hearing Association Convention, Miami, FL: November 16 – 19, 2006.

**Wheeler, K.M.** Investigation of the respiratory-swallow relationship during effortful swallowing. Poster presentation, American Speech Language Hearing Association Convention, Boston, MA: November 16 – 19, 2007.



**Wheeler-Hegland, K.,** Troche, M., Rosenbek, J. & Sapienza, C. Physiologic aspects of swallow function in patients with Parkinson's disease with and without penetration and/or aspiration. Poster presentation, Dysphagia Research Society, Charleston, SC: March 6 - 8, 2008.

Ashford, J., Frymark, T., McCabe, D., Mullen, R., Musson, N., Smith-Hammond, C., Schooling, T., **Wheeler-Hegland, K.** Evidenced-Based Systematic Review: Behavioral interventions for dysphagia. Poster presentation, Dysphagia Research Society, Charleston, SC: March 6 - 8, 2008.

Troche, M., **Wheeler-Hegland, K.,** Musson, N., Rosenbek, J., & Sapienza, C. Effects of Expiratory Muscle Strength Training (EMST) on Swallow function in Parkinson's disease. Dysphagia Research Society, Charleston, NC: March 6 - 8, 2008.

**Wheeler-Hegland, K.,** Huber, J., Pitts, T. & Sapienza, C. Lung volume in sequential swallowing. Poster presentation, Dysphagia Research Society, New Orleans, LA: March 7-10, 2009.

**Wheeler-Hegland, K.,** Pitts, T., Davenport, P. Cortical Response to Mechanical Pharyngeal Stimulation. Poster presentation, UF College of Medicine Research Day, Gainesville, FL: April 28-29, 2009.

**Wheeler-Hegland, K.,** Pitts, T., Davenport, P. Cortical evoked potential response to oropharyngeal mechanical stimulation. Poster presentation, Society for Neuroscience, Chicago, IL: October 17-21, 2009.

**Wheeler-Hegland, K.,** Hotchkiss, M., Pate, K., Davenport, P.W. Sublingual muscle recruitment with tracheal occlusion in conscious rats. Poster presentation, Dysphagia Research Society, San Diego, CA: March 4 - 6, 2010.

**Wheeler-Hegland, K.,** Pitts, T., Davenport, P.W. Cortical gating of oropharyngeal sensory stimuli. Dysphagia Research Society, San Diego, CA: March 4 - 6, 2010.

**Wheeler-Hegland, K.,** Pitts, T., Davenport, P.W. Morphology and source localization of the pharyngeal sensory evoked potential. Poster presentation, Dysphagia Research Society, San Diego, CA: March 4 - 6, 2010.

**Wheeler-Hegland, K.,** Pitts, T., Davenport, P.W. Pharyngeal sensory evoked potential with and without topical anesthetic to the posterior oropharyngeal wall. Poster presentation, Experimental Biology Conference, Anaheim, CA: April 23 - 28, 2010.

**Wheeler-Hegland, K. &** Davenport, P.W. Cortical modulation of airway defense reflexes. International Society for the Advancement of Respiratory Psychophysiology, New York, NY: September 24 - 26, 2010.

**Wheeler-Hegland, K. &** Davenport, P.W. Voluntary modulation of reflexive cough. Poster presentation, Dysphagia Research Society, San Antonio, TX: March 3 - 5, 2011.

**Wheeler-Hegland, K.** & Davenport, P.W. Volitional modulation of reflex cough. Poster presentation, Experimental Biology Conference, Washington DC: April 9 - 13, 2011.

**Wheeler Hegland, K.,** Bolser, D. & Davenport, P.W. Volitional modulation of cough induced with supra-threshold levels of capsaicin. American Cough Conference, New York, NY: June 10 - 11, 2011.

Troche, M.T., Brandimore, A.E., & **Hegland, K.W.** Dyspnea and quality of life associated with dysphagia in Parkinson's disease. International Society for the Advancement of Respiratory Psychophysiology, Orlando, FL: September 29-30, 2012.

**Hegland, K.W.,** Brandimore, A.E. & Troche, M.T. Dyspnea and quantitative measures of dysphagia in Parkinson's disease. International Society for the Advancement of Respiratory Psychophysiology, Orlando, FL: September 29-30, 2012.

**Hegland, K.W.,** Troche, MS & Davenport, PW. Relationship between total expired air, peak airflow, and cough number in down-regulated cough. Fall Voice Conference, New York, NY: October 4-6, 2012.

Troche, MS., **Hegland, K.W.,** Davenport, PW. & Okun, MO. Cough function pre/post DBS in Parkinson's disease: A case series. Fall Voice Conference, New York, NY: October 4-6, 2012.

**Hegland, KW.,** Pitts, TE & Troche, MS. Airway Protection Deficits for the SLP: Cough & Swallowing. 1-Hour oral seminar at the American Speech Language Hearing Association annual Convention. Atlanta, GA: November 20-22, 2012.

**Hegland, KW.,** Troche, MS., Davenport, PW. & Okun MO. Relationship between peak expiratory flow, cough expired volume, and cough number in persons with Parkinson's Disease. Dysphagia Research Society, Seattle, WA. March 14-16, 2013.

**Hegland, KW.,** Troche, MS. & Okun, MO. Sequential cough in Parkinson's disease. American Cough Conference. New York, NY: June 6-7, 2013.

Troche, M.S., **Hegland, KW.,** Davenport, PW. & Okun, MO. Urge to cough and airway protection in Parkinson's disease. American Cough Conference. New York, NY: June 6-7, 2013.

Tsai, H-W., Fennelly, K., **Hegland, K.W.,** Adams, S., Congdrey, J.L, Hosford, J.L. & Davenport, P.W. Capsaicin induced cough and urge-to-cough in elderly individuals with sarcopenia. International Society for the Advancement of Respiratory Psychophysiology, Leuven, Belgium: September 27-28, 2013.

Troche, M.S., **Hegland, K.W.,** Okun, M.O., & Davenport, P.W. Decreased sensitivity to cough stimulus in persons with Parkinson's disease. International Society for the Advancement of Respiratory Psychophysiology, Leuven, Belgium: September 27-28, 2013.

**Hegland, K.W.**, Troche, M.T., Okun, M.O., & Davenport, P.W. Differences in urge-to-cough and total coughs produced in Parkinson's disease versus healthy adults. International Society for the Advancement of Respiratory Psychophysiology, Leuven, Belgium: September 27-28, 2013.

Laciuga, H. Brandimore, A.E., Troche, M.S. & **Hegland, K.W.** The analysis of clinicians' perceptual cough evaluation. American Speech Language Hearing Association annual Convention, Chicago, IL: November 14 – 16, 2013.

Troche, M.S., Brandimore, A.E., Foote, K.F., Okun, M.S. & **Hegland, K.W.** Swallowing Outcomes following Unilateral STN vs. GPi Surgery: A retrospective analysis. Poster presentation, Dysphagia Research Society, Nashville, TN: March 4-6, 2014.

**Hegland, K.W.**, Davenport, P.W., Brandimore, A.E., & Troche, M.S. Expiratory muscle strength training (EMST) to improve airway protection in post-stroke patients. Poster presentation, Dysphagia Research Society, Nashville, TN: March 4-6, 2014.

Brandimore, A.E., **Hegland, K.W.** & Troche, M.S. Peak expiratory flow in Parkinson's disease. Poster presentation, Dysphagia Research Society, Nashville, TN: March 4-6, 2014.

Troche, M.S., Brandimore, A.E., Davenport, P.W., Okun, M.O. & **Hegland, K.W.** Reflex cough sensitivity in Parkinson's disease and dysphagia. Dysphagia Research Society, Nashville, TN: March 4-6, 2014.

**Hegland, K.W.**, Troche, M.S., Singletary, F., & Davenport, P.W. The effect of expiratory muscle strength training (EMST) on urge-to-cough in stroke patients. International Society for the Advancement of Respiratory Psychophysiology, New Brunswick, NJ: September 20 – 21, 2014.

Troche, M.S., **Hegland, K.W.**, Brandimore, A.E., Okun, M.S. & Davenport, P.W. Deep Brain stimulation and airway protection in Parkinson's disease. International Society for the Advancement of Respiratory Psychophysiology, New Brunswick, NJ: September 20 – 21, 2014.

Brandimore, A.E., Troche, M.S. Davenport, P.W. & **Hegland, K.W.** (poster presentation). Respiratory kinematics of reflex and voluntary cough in healthy adults. International Society for the Advancement of Respiratory Psychophysiology, New Brunswick, NJ: September 20 – 21, 2014.

Chenivesse, C., Chan, P-Y., Tsai, Hsiu-Wen, **Hegland, K.W.**, Silverman, E., Von Leupoldt, A., Similowski, T. & Davenport, P.W. Affective Modulation of respiratory sensory gating: a mechanism for the emotion-related overperception of respiratory sensations? International Society for the Advancement of Respiratory Psychophysiology, New Brunswick, NJ: September 20 – 21, 2014.

Troche, M., Rosenbek, J., **Hegland, K.W.**, Brandimore, A., & Parham, K. The management of communication deficits in the complex movement disorder patient. American Speech Language Hearing Association annual Convention, Orlando, FL: November 20 – 22, 2014.

**Hegland, K.W.**, Plowman, E. Troche, M.S. Dysphagia & airway protection deficits: Best practices in evaluation and management of complex neurologic patients. American Speech Language Hearing Association annual Convention, Orlando, FL: November 20 – 22, 2014.

Laciuga, H., Troche, M.S. **Hegland, K.W.** Functional outcomes associated with expiratory muscle strength training (EMST). American Speech Language Hearing Association annual Convention, Orlando, FL: November 20 – 22, 2014.

Troche, M.S., Brandimore, A.E., Okun, M.S., Davenport, P.W. & **Hegland, K.W.** Airway protective mechanisms and deep brain stimulation in Parkinson's disease. Dysphagia Research Society, Chicago, IL: March 14 – 16, 2015.

**Hegland, K.W.**, Singletary, F., Troche, M.S., Khanna, A. & Davenport, P.W. The effect of expiratory muscle strength training on cough and swallow in stroke patients. Poster presentation, Dysphagia Research Society, Chicago, IL: March 14 – 16, 2015. Poster presentation, Dysphagia Research Society, Chicago, IL: March 14 – 16, 2015.

Brandimore, A.E., Troche, M.S. & **Hegland, K.W.** The influence of lung volume and urge-to-cough on reflex cough effectiveness. Poster presentation, Dysphagia Research Society, Chicago, IL: March 14 – 16, 2015.

**Hegland, K.W.**, Singletary, F., Troche, M.S., & Davenport, P.W. The effect of respiratory-based rehabilitation on airway protection following stroke. Stroke Rehab: From No-Tech to Go-Tech, Christchurch, New Zealand: May 10-12, 2015.

Brandimore AE, Troche MS, & **Hegland KW.** Poster. The influence of age on the perception of urge to cough in healthy older adults. International Society for the Advancement of Respiratory Psychophysiology. Seville, Spain. Oct 9, 2015 - Oct 11, 2015.

**Hegland K.W.**, Troche M.S., & Brandimore A.E. Paper. Magnitude estimation of respiratory resistive loads in Parkinson's disease. International Society for the Advancement of Respiratory Psychophysiology. Seville, Spain. Oct 10, 2015 - Oct 11, 2015.

Troche M.S., **Hegland K.W.**, Brandimore A.E., & Schumann B. Paper. Urge-to-cough as a clinical predictor of dysphagia in Parkinson's disease. International Society for the Advancement of Respiratory Psychophysiology. Seville, Spain. Oct 10, 2015 - Oct 11, 2015.

M.S. Troche, A.E. Brandimore, **K.W. Hegland**, P.W. Davenport, K.F. Foote, & M.S. Okun. Poster. Airway protective mechanisms and deep brain stimulation in Parkinson's disease. International Congress of Parkinson's disease and Movement Disorders. Berlin, Germany. Jun 19, 2016 - Jun 23, 2016.

L. Shahgholi, S. De Jesus, A. Paterson, W. Deeb, N.R. Mcfarland, & **K. Hegland.** Poster. Subjective report does not predict objective swallow impairment in atypical Parkinsonian

syndromes. International Congress of Parkinson's disease and Movement Disorders. Berlin, Germany. Jun 19, 2016 - Jun 23, 2016.

**K.W. Hegland**, M.S. Troche, M.S. Okun, & A.E Brandimore. Poster. Blunted perception of respiratory resistive loads in Parkinson's disease. International Congress of Parkinson's disease and Movement Disorders. Berlin, Germany. Jun 19, 2016 - Jun 23, 2016.

S. De Jesus, J. Hicks, L. Almeida, L. Shahgholi, A. Patterson, A. Bona, B. Ahmed, **K. Hegland**, & M. Okun. Poster. Does VIM deep brain stimulation affect swallowing?. International Congress of Parkinson's disease and Movement Disorders. Berlin, Germany. Jun 19, 2016 - Jun 23, 2016.

M.S. Troche, A.E. Brandimore, B. Schumann, M.S. Okun & **K.W. Hegland**. Poster. Clinical predictors of airway protective dysfunction in Parkinson's disease. International Congress of Parkinson's disease and Movement Disorders. Berlin, Germany. Jun 19, 2016 - Jun 23, 2016.

**Hegland, K.W.**, Brandimore, A., O'donnell, S. & Troche, M.S. Platform presentation. Relationship between reflex cough and swallow timing in Parkinson's disease. Dysphagia Research Society. Baltimore, MD: March 15 – 17<sup>th</sup>, 2018.

Ali Barikroo, Ph.D.; **Karen Hegland, PhD.**; Giselle Carnaby, Ph.D.; Donald Bolser, Ph.D.; Todd Manini, Ph.D. & Michael Crary, Ph.D. Poster. The Effects of Electrical Stimulation Pulse Duration on Lingual Palatal Pressure Measures During Swallowing in Healthy Older Adults. Dysphagia Research Society. Baltimore, MD: March 15 – 17<sup>th</sup>, 2018.

Fullerton, A., Mou, Y., Silver, N., Dziegielewski, P, **Hegland, K.W.** Laryngeal Inhibition of Perceived Sensation in response to Cough Stimuli. International Society for the Advancement of Respiratory Psychophysiology. Gainesville, FL: October 12 - 14, 2018.

Novalski, C., Mainland, J., **Hegland, K.**, Wise, P., Dalton, P. Characterization of sensory and motor cough responses to ethyl Butyrate inhalation in healthy adults. International Society for the Advancement of Respiratory Psychophysiology. Gainesville, FL: October 12 - 14, 2018.

Troche, M.S., Perry, S., Curtis, J., Sevitz, J., **Hegland, K.W.**, Kazandijian, M. Management of cough dysfunction in the patient with dysphagia: review of complex cases. American Speech, Language and Hearing Association Annual Convention. Boston, PA: November 16, 2018.

Barikroo, A., Carnaby, G., **Hegland, K.W.**, Crary, M. Transcutaneous Electrical Stimulation on the Submental Area: The Relations of Biopsychological Factors with Maximum Amplitude Tolerance and Perceived Discomfort Level. Poster presentation, Dysphagia Research Society Annual Meeting. San Diego, CA: March 6 - 9, 2019.

## **INVITED PRESENTATIONS**

Wheeler, K.M. The Evaluation of Swallowing. Department of Occupational Therapy, University of Florida, Gainesville, FL: March 18, 2005.

Wheeler, K.M. The Mechanics of Eating. Department of Occupational Therapy, University of Florida, Gainesville, FL: October 14, 2005.

Wheeler, K.M. & Sapienza, C.M. Rationale for respiratory muscle strength training in Parkinson's Disease. University of San Francisco Voice Conference. San Francisco, CA: October 21-23, 2005.

Wheeler, K.M. The Neurology of Swallowing. Department of Communication Sciences and Disorders, University of Florida, Gainesville, FL: June 15, 2006.

Wheeler, K.M. Normal and Disordered Swallowing. Department of Speech and Hearing Sciences, Arizona State University, Tempe, AZ: October 24, 2006, April 10, 2007 & October 9, 2007.

Wheeler-Hegland, K. Respiration and Swallowing. Florida Speech Language Hearing Association. Marco Island, FL: May 24-25, 2009.

Wheeler-Hegland, K. Interactions of Upper Airway Defense Reflexes. Experimental Biology Conference, Anaheim, CA: April 23 – 28, 2010.

Sapienza, C.M., **Hegland, K.W.**, Brehm, S.B., Hoit, J.E., Huber, J.E. & Davenport, P.W. Respiratory Function: Assessment and Treatment in Disease: Effects of Stroke on Respiration. Invited Short Course given at the American Speech Language Hearing Association annual Convention. Atlanta, GA: November 20-22, 2012.

**Hegland, K.W.** Mechanisms and deficits of airway protection for the speech-language pathologist. Crossroads Conference on Communicative Disorders. Purdue, Indiana: October 28-29, 2013.

**Hegland K.W. Presidential Address.** A tale of breathing and other life sustaining behaviors. Annual meeting of the International Society for the Advancement of Respiratory Psychophysiology. Seattle, WA. Oct 7, 2016 - Oct 8, 2016.

**Hegland, K.W.** Cough in the continuum of airway protection: Neurological populations. Dysphagia Research Society. Panel session with M. Troche and K. Hutcheson. Portland, OR: March 2 – 4, 2017.

**Hegland, K.W.** Expiratory Muscle Strength Training (EMST): Evidence, implementation and best practice. Veteran's Affairs Teleconference meeting. June 10<sup>th</sup>, 2017.

**Hegland, K.W.** Assessing and managing cough dysfunction (dystussia) in neurogenic patient populations. VA 2017 Speech Pathology Lecture Series. June 24<sup>th</sup>, 2017.

**Hegland, K.W.** Case studies: evaluation and management from the speech pathologist's perspective. Masters de la Fonocurguria de las Americas. Mexico City, Mexico: Feb. 27th – March 2<sup>nd</sup>, 2018.

**Hegland, K.W.** Unilateral vocal fold paralysis: Rehabilitation techniques. Masters de la Fonocurguria de las Americas. Mexico City, Mexico: Feb. 27th – March 2<sup>nd</sup>, 2018.

**Hegland, K.W.**, Laryngeal contribution to airway protection: swallowing and more. Masters de la Fonocurguria de las Americas. Mexico City, Mexico: Feb. 27th – March 2<sup>nd</sup>, 2018.

**Hegland, K.W.** Residual “cough” function in total laryngectomy & deficits in airway protection secondary to laryngeal dysfunction. Masters de la Fonocurguria de las Americas. Mexico City, Mexico: Feb. 27th – March 2<sup>nd</sup>, 2018.

Murry, T. & **Hegland, K.W.** Laryngeal/voice rehabilitation workshop. Masters de la Fonocurguria de las Americas. Mexico City, Mexico: Feb. 27th – March 2<sup>nd</sup>, 2018.

**Hegland, K.W.**, & Troche, M.T. Respiratory Muscle Strength Training: Treatment Targets for Swallowing and Cough. Invited. Charleston Swallowing Conference. Evanston, IL: July 12 - 14, 2018.

**Hegland, K.W.** Something went down the wrong pipe, or did it? The role of sensation in disorders of airway protection. Monell Chemical Senses Institute. Philadelphia, PA: May 24<sup>th</sup>, 2018.

**Hegland, K.W.** Implementation of Cough Testing in Clinical Practice. Invited. Dysphagia Research Society Annual Meeting, San Diego, CA: March 6, 2019.

**Hegland, K.W.** Effect of deep brain stimulation surgery on swallowing in parkinson’s disease. Third International Dysphagia Symposium at Fujita Health University. Nagoya, Japan: September 4, 2019.

**Hegland, K.W.** Effect of deep brain stimulation surgery on speech and swallowing in parkinson’s disease. Japanese Society for Dysphagia Research. Nigiita, Japan: September 6-7, 2019.

**Hegland, K.W.** Deep Brain Stimulation (DBS) in Parkinson’s disease: The Role of the SLP. Invited. Illinois Speech Language Hearing Association. Rosemont, IL: February 6-7, 2020.

**Hegland, K.W.** Speech and swallowing features of atypical parkinsonism. Invited. Illinois Speech Language Hearing Association. Rosemont, IL: February 6-7, 2020.

**Hegland, K.W.** Maintaining Communication- and Swallow-related functions for People with Parkinson’s Disease. Invited. Sandra Edwards Colloquium, Department of Occupational Therapy, University of Florida. Gainesville, FL: February 6, 2021.

#### **LOCAL PRESENTATIONS**

**Wheeler, K.M.**, Chiara, T. & Sapienza, C.M. Submental and infrahyoid muscle activity during swallowing and during the use of a respiratory pressure-threshold trainer. Poster presentation, Neurorehabilitation Seminar, Gainesville, FL: September 21, 2005.

**Wheeler-Hegland, K.** A simple tool for screening reflexive cough. Department of Speech, Language and Hearing Sciences Seminar, Gainesville, FL: June 16, 2011.

**Wheeler-Hegland, K.** & Pitts, T. Characterizing the cortical response to mechanical stimulation of the pharynx. Brain Rehabilitation Research Center Synaps Seminar Series. February 16, 2010.

**Wheeler-Hegland, K.** Cortical gating oropharyngeal sensory stimuli. Physiological Sciences Seminar Series. February 2, 2010.

**Wheeler-Hegland, K.** Voluntary modulation of airway defense reflexes. Joint Physiological Sciences and Brain Rehabilitation Research Center SyNaps Seminar series. November 9, 2010.

Kim, J.Y., Mou, Y., Slepian, M., & **Hegland, K.** (2019, April). Magnitude estimation of respiratory resistive loads, Urge-to-cough sensitivity and swallowing safety in Parkinson's disease. Poster presented at Research Day 2019, Gainesville, Florida. *Note: This poster was awarded 2nd place for PPHP research day.*

Michela Mir, M.S., Yuhan Mou, M.A., Ja Young Kim, M.S., Michelle Slepian, M.A., **Karen Wheeler-Hegland, Ph.D.** Potential Influences of Depression on Inspiratory Effort and Perceptions of Urge to Cough and Difficulty Breathing in Parkinson's Disease. Poster presented at Research Day 2019, Gainesville, Florida.

#### **GRANT SUPPORT – COMPLETED**

Wheeler-Hegland, K. (PI; 100% FTE). VA Career Development Award (1) C6697M, 2009 – 2011. Corticobulbar motor output in aging adults. Salary support only.

Wheeler-Hegland, K. (PI; 25% FTE). American Heart Association Award # 12CRP9010001, 01/01/2012 - 12/31/2014. Rehabilitation of cough and swallowing in stroke patients. \$98,950.

Wheeler-Hegland, K (PI; 25% FTE). National Institutes of Health R21, Airway protection deficits according to stimulus type in Parkinson's disease. \$390,660. 4/01/2015 – 3/31/2017

Hegland, K.W. (PI; 10% FTE). UF CTSI Respiratory Somatosensation in Parkinson's disease. \$27,357. 7/1/2016 – 10/31/2017

Hegland, K.W. (Co-I; 5% FTE). National Institutes of Health SPARC (OT). Functional mapping of peripheral and central circuits for airway protection and breathing. \$7,471,226 9/25/2016 – 9/24/2019

Hegland, K.W. (UF PI; 5% FTE) MJ Fox Foundation Rehabilitation for swallowing and cough in Parkinson's disease. \$355,000 8/1/2016 – 7/31/2020

Hegland, K.W. (Co-I; 10% FTE). National Institutes of Health R01 Laryngeal adaptation in speech and swallowing. \$1,843,123 4/1/2018 – 3/31/2023



### **GRANT SUPPORT – AWARDED**

Hegland, K.W., (Co-I; 2% FTE) National Institutes of Health R01  
Delineating physiologic mechanisms of swallowing impairments and decline in ALS. \$1,855,000  
4/1/2017 – 3/31/2022.

Hegland, K.W. (PI; 30% FTE) National Institutes of Health R01  
Mechanisms of airway protection dysfunction in Parkinson’s disease. \$1,814,259  
9/1/2017 – 8/31/2022.

### **GRANT SUPPORT – UNFUNDED**

Hegland, K.W. (Co-I; 10% FTE). National Institutes of Health R01.  
4/18/2018 – 4/17/2021; Spontaneous and Reflex Cough to Track Progression of Muscle Disease.

Hegland, K (Co-PI; 20% FTE) & Troche, M (Co-PI). National Institutes of Health RO1,  
09/01/2012 – 08/31/2016. Mechanisms and rehabilitation of cough in Parkinson’s disease.

Hegland, K.W., (Co-I; 20% FTE) National Institutes of Health R21  
9/1/2014 – 8/31/2016 Novel cough rehabilitation paradigm for airway protection in Parkinson’s  
disease

Hegland, K.W., (Co-I; 20% FTE) MJ Fox Foundation  
6/1/2014 - 5/31/2015 Novel rehabilitation for cough in Parkinson’s disease

**REVIEWER:** Journal of Speech, Language and Hearing Research; American Journal of Physical  
Medicine and Rehabilitation; American Journal of Speech Language Pathology, Neurobiology of  
Aging, Journal of Applied Physiology, Cough journal, Dysphagia journal, Journal of Asthma,  
Parkinsonism and Related Disorders, Frontiers in Respiratory Physiology; Plos One

**ASSOCIATE EDITOR:** Frontiers in Respiratory Physiology

### **STUDENT COMMITTEES (MASTERS AND DOCTORAL)**

Bryn Taylor	Doctoral (Chair)
Alyssa Terry	Doctoral (Chair)
May Smith-Sherry	Doctoral (Chair)
Alycia Rivet	Doctoral (Chair)
Michela Mir	Doctoral (Chair)
Yuhan Mou	Doctoral (Chair)
Amy Fullerton	Doctoral (Chair)
Jayoung Kim	Doctoral (Chair)

Helena Laciuga	Doctoral (Chair)
Alexandra Brandimore	Doctoral (Co-Chair)
Nalanda Chakraborty	Doctoral
Akila Rappaja	Doctoral
Jillian Condrey	Doctoral
Guannon Zhou	Doctoral
Nick Musselwhite	Doctoral
Lauren Tabor	Doctoral
Ali Barikroo	Doctoral
Justine Dallal York	Doctoral
Kierstyn Tiegens	Master's (chair)
Emily Herndon	Master's (chair)
Tawni Hammer	Master's (chair)
Michelle Valenti	Master's (chair)
Seth Dornisch	Master's (chair)
Molly Emory	Master's (chair)
Jessica Zipper	Master's (chair)