

CURRICULUM VITAE

PERSONAL INFORMATION

Name: Richard Lawrence Segal, PT, PhD, FAPTA

Email: segal@musc.edu

EDUCATION

Management Development Program, Harvard University, Graduate School of Education, 2014

Sabbatical, Duke University, Brain Imaging and Analysis Center, 2000

Mini-Sabbatical, Medical College of Virginia, Department of Physiology, 1988-89

PhD, The University of Virginia, 1979-84, Anatomy and Neuroscience

BS, The Ohio State University, 1972-76, Allied Health

PROFESSIONAL EXPERIENCE

Co-Leader with Dr. Nancy Carson, Mentorship Program, College of Health Professions, Medical University of South Carolina, 2015-present

Chair, Department of Health Professions, College of Health Professions, Medical University of South Carolina, 2013- present (Oversees Divisions of Anesthesia for Nurses, Cardiovascular Perfusion, Healthcare Studies, Occupational Therapy, Physician Assistant Studies and Physical Therapy)

Professor (Tenured), Division of Physical Therapy, Department of Health Professions, College of Health Professions, Medical University of South Carolina, 2013- present

Professor (Adjunct), Department of Allied Health Sciences, School of Medicine, University of North Carolina at Chapel Hill, 2013-present

Co-Interim Director UNC-NCSU Biomedical Engineering, Rehabilitation Engineering Center, July 1, 2011-June 30, 2013

Professor (Adjunct), Department of Biomedical Engineering, School of Medicine, University of North Carolina at Chapel Hill, Chapel Hill, NC, 2009 – present

Director, Division of Physical Therapy, Department of Allied Health Sciences, School of Medicine, University of North Carolina at Chapel Hill, 2005- 2013

Professor (Tenured), Department of Allied Health Sciences, School of Medicine, University of North Carolina at Chapel Hill, 2005- 2013

Faculty, Curriculum in Neurobiology, University of North Carolina at Chapel Hill, 2005- 2013

Faculty, Human Movement Science Program, University of North Carolina at Chapel Hill, 2005- 2013

Associate Professor (Adjunct), Division of Physical Therapy, Department of Rehabilitation Medicine, Emory University School of Medicine, 2005- present

Faculty, The Center for Neurodegenerative Disease, Emory University, 2002-2005

Associate Director, Division of Physical Therapy, Department of Rehabilitation Medicine, Emory University School of Medicine, 1998-2005

Associate Professor (Tenured), Division of Physical Therapy, Department of Rehabilitation Medicine, Emory University School of Medicine, 1994-2005

Faculty, Program in Neuroscience, Graduate Division of Biological and Biomedical Sciences, Emory University Graduate School of Arts and Sciences, 1991-present

Assistant Professor, Department of Cell Biology, Emory University School of Medicine, 1990-2005

Associate Professor (Research Track), Department of Rehabilitation Medicine, Emory University School of Medicine, 1991-1994

Assistant Professor, Department of Rehabilitation Medicine, Emory University School of Medicine, 1985-1991

Home Health Physical Therapist, Atlanta, Georgia (PRN), 1984-1994

Instructor, Department Rehabilitation Medicine, Emory University School of Medicine, 1983-1985

Part-time Instructor, Physical Therapist Assistant Program, Northern Virginia Community College, Annandale Campus, 1979

Physical Therapist, Washington, D.C., 1976-1979

Teaching Assistant, Department of Anatomy, Ohio State University College of Medicine, 1975-1976

HONORS AND AWARDS

Research Day Keynote Speaker, School of Physical Therapy, Regis University, October, 2019

Commencement Speaker, Division of Physical Therapy, Emory University (May, 2019)

6th Kaleckas Lecturer, Department of Physical Therapy and Movement Science, Northwestern University, April 1, 2013

Keynote Speaker, Department of Physical Therapy and Rehabilitation Science, Research Day, May 14, 2012

Elected Catherine Worthingham Fellow of the American Physical Therapy Association, 2009

Commencement Speaker, Division of Physical Therapy, Emory University (May, 2006)

Honoree, 2004 Showcase Georgia, Physical Therapy Association of Georgia, October, 2004

Outstanding paper at Applied Psychophysiology and Biofeedback Annual Meeting, Colorado Springs, Colorado, March, 1992

Telencephalon Award, Department of Anatomy, Ohio State University, Spring, 1974

SOCIETY MEMBERSHIPS

International Brain Research Organization (1983 - present)

Society for Neuroscience (1983 - present)

American Association of Anatomists (1989-1999)

American Physical Therapy Association; Member of Neurology, Research and Education Sections (1974-present)

American College of Sports Medicine (2005-2010)

American Physiological Society (2000 - 2005)

Association for the Advancement of Science (1982-88)

New York Academy of Sciences (1987-1994; 2008-2010)

Georgia Association for Biomedical Research (1989-1999)

American Association of University Professors (1995-2001)

Neural Control of Movement (1996-1999; 2014-2016)

American Association for the Advancement of Science (2017- present)

American Society of Neurorehabilitation (2017-present)

BIBLIOGRAPHY

Video media

Segal, R. (2016). *American Council on Physical Therapy Education's Oral History Video Project: Rick Segal*. Alexandria, VA: American Council of Physical Therapy Education. Accessed at: <https://www.acapt.org/about/history/oral-history-videos/videos/default-source/oral-history-videos/rick-segal-master-v1> on December 21, 2016

Editorials

Segal, R.: Children with Medical Complexity (CMC) Offer Challenges and Opportunities for the Healthcare System, Journal of Pediatric Rehabilitation Medicine 9 (2016) 175-176. DOI 10.3233/PRM-160389

Gwyer, J., Hack, L., Jensen, G., Segal, R., Boissonnault, W: Future directions for educational research in Physical Therapy, J Physical Therapy Education 29 (2015) 4:3-4.

Books and Chapters

Bilsky, G. and Segal, R.L.: Electrodiagnostics in Rehabilitation, In: G.F. Fletcher, B. Jann, S.L. Wolf, and J. Banja (Eds.): Rehabilitation Medicine: Contemporary Clinical Perspectives. Philadelphia, Lea and Febiger, (1992), pp. 419-443.

Segal, R.L. and Wolf, S.L.: Morphological and Functional Considerations for Therapeutic Exercise, In: J.V. Basmajian and S.L. Wolf (Eds.): Therapeutic Exercise, Fifth Edition. Baltimore, Williams and Wilkins, (1990), pp. 1-47.

Refereed Journal Articles

Dutt-Mazumder, A, Segal, RL, Davis, L., Thompson, A, Dean, J: Morphological and reflex properties of soleus during ankle flexion (In preparation)

Liang, JN, Segal, RL: Magnitude of reciprocal inhibition on plantarflexor H-reflex increases non-linearly with level of dorsiflexor muscle activity in non-neurologically impaired humans. (In preparation)

Dutt-Mazumder, A, Segal, RL, Newell: Quantifying task “relevant” and “irrelevant” joint angle variance on sloped standing: An UCM approach (In revision)

Brownfield EL, Cole D, Segal, RL, Pilcher E, Shaw D, Stuart G, Smith G: Leadership Development in Academic Health Science Centers: Towards a Paradigm Shift, Academic Medicine, in review

Dutt-Mazumder, A, Segal, RL, Thompson, A: Effects of up and down slopes on the soleus H-reflex during standing Motor Control. 2020 Jan 2:1-15. doi: 10.1123/mc.2018-0118.

Jensen, GM, Nordstrom, T, Segal, RL, McCallum, C, Graham, C, Greenfield, B: Education Research in Physical Therapy: Visions of the Possible, Physical Therapy 96 (2016) 1874-1884; Epub, June 16, 2016 PMID: 27313239.

Makihara, Y, Segal, RL, Wolpaw, JR, Thompson, AK: H-Operant Conditioning of the Soleus H-reflex does not induce long-term changes in the gastrocnemius H-reflexes and does not disturb normal locomotion in humans, J Neurophysiol. 112 (2014 Sep 15) 1439-46

Makihara, Y, Segal, RL, Wolpaw, JR, Thompson, AK: H-reflex modulation in the human medial and lateral gastrocnemii during standing and walking, Muscle and Nerve 45(2012) 16-25

Segal, R.L.: Preface to special issue: Spinal Circuits and the Musculoskeletal System: Translation of Basic Research into the Clinic. Cells, Tissues, Organs 193 (2011) 289.

Segal, R.L., Lewek, M.D., McCulloch, K., Mercer, V.S: Introduction: The Necessity for Effective Interaction Between Basic Scientists and Rehabilitation Clinicians. Cells, Tissues, Organs 193 (2011) 290-297.

Chen, XY, Chen, Y, Wang, Y, Thompson, A, Carp, JS, Segal, RL and Wolpaw, JR: Reflex conditioning: A new strategy for improving motor function after spinal cord injury, Annals of the New York Academy of Sciences 2010 Jun;1198 Suppl 1:E12-21.

Giordano SB, Segal R L, Abelew TA: Differences in end-point force trajectories elicited by electrical stimulation of individual human calf muscles, Journal of Applied Biomechanics 25 (2009) 330-339

Segal, R.L.: Using imaging to assess normal and adaptive muscle function, Physical Therapy, 87(6):704-18, 2007

Giordano, SB and Segal, R.L.: Leg muscles differ in spatial activation patterns with differing levels of voluntary plantar flexion activity in humans, Cells, Tissues, Organs 184 (2006), 42-51.

Segal, R.L., and Song, A.W: Non-uniform activity of human calf muscles during an exercise task, Archives of Physical Medicine and Rehabilitation, 86 (2005), 2013-2017.

Segal, R.L., Catlin, P.A., Krauss, E.W., Merick, K.A., Robilotto, J.B.: Anatomical partitioning of three human forearm muscles. Cells Tissues Organs. 170 (2002) 183-197.

Livingston, B.P., Segal, R.L., Song, A.W., Hopkins K., English, A.W. and C.C. Manning: Magnetic resonance imaging t2 times of extensor carpi radialis longus and brevis after isometric exercises. Archives of Physical Medicine and Rehabilitation. 82 (2001) 1164-1170.

Segal, R.L., Wolf, S.L. Catlin, P.A., Gilliland, R.L., Taffs, J.K., Bass, H.C., and Vickers, E.F.: Uncoupling of human short and long latency stretch reflex responses with operant conditioning. Restorative Neurology and Neuroscience. 17 (2000) 17-22.

Segal, R.L.: Spinal cord plasticity is a possible tool for rehabilitation. Neurology Reports, 22 (1998) 54-60.

Segal, R.L.: Plasticity in the nervous system: Operant conditioning of the spinal stretch reflex. Topics in Stroke Rehabilitation. 3 (1997) 76-87.

Segal, R.L.: What is spasticity and why bother to measure it? Contemporary Perspectives on Movement Disorders: Mechanisms and Measurement. Neurology Reports 21 (1997) 76-77.

Smith, B.N., Segal, R.L. and Wolf, S.L.: Long latency ankle responses to dynamic perturbation in elderly fallers and non-fallers. J. Amer. Ger. Soc. 44 (1996) 1447-1454.

Wolf, S.L., Segal, R.L., Catlin, P.A., Tschorn, J., Raleigh, T., Kontos, H. and Pate, P.: Determining consistency of elbow joint threshold angle in spastic elbow flexor muscles. Physical Therapy 76 (1996) 586-600.

Wolf, S.L. and Segal R.L.: Down-training human biceps brachii spinal stretch reflexes. J. Neurophysiol. 75 (1996) 1637-1646.

Wolf, S.L., Segal, R.L., Heter, N.D. and Catlin, P.A.: Contralateral and long latency effects of human biceps brachii stretch reflex conditioning. Exp. Brain Res. 107 (1995) 96-102.

Segal, R.L. and Wolf, S.L.: Operant conditioning of the biceps brachii spinal stretch reflexes in spinal cord injured patients. Exp. Neurol. 130 (1994) 202-213.

Saca, L.R. de, Segal, R.L. and Catlin, P.A.: Immediate effects of the toe spreader on the tonic toe flexion reflex. Phys. Ther., 74 (1994) 561-570.

Segal, R.L. and Wolf, S.L.: Variability of human biceps brachii spinal stretch reflexes: Control conditions. J. Electromyogr. Kinesiol. 3 (1993) 24-32.

Wolf, S.L., Segal, R.L. and English, A.W.: Task oriented electromyographic activity from the human lateral gastrocnemius muscle. J. Electromyogr. Kinesiol. 3 (1993) 87-94.

English, A.W., Wolf, S.L. and Segal, R.L.: Compartmentalization of muscles and their motor nuclei: The partitioning hypothesis. Phys. Ther. 73 (1993) 857-867.

Milidonis, M.K., Kraus, S.L., Segal, R.L. and Widmer, C.G.: Genioglossus muscle activity in response to changes in anterior/neutral head posture. Am. J. Ortho. Dentofac. Orthop. 103 (1993) 39-44.

Segal, R.L. and Nichols, P.J.: Teaching basic science in physical therapy programs emphasizing movement control. J. Phys. Ther. Ed. 7 (1993) 14-21.

Segal, R.L.: Neuromuscular compartments in the human biceps brachii muscle. Neurosci. Lett. 140 (1992) 98-102.

Segal, R.L., Catlin, P.A., Barker, C., Broadbent, P., Cockerham, A., Reaver, L. and Wolf, S.L.: Modification of the human biceps brachii spinal stretch reflex: Effects on antagonist and synergist muscles, Electromyographical Kinesiology: Proceedings of the 8th Congress of the International Society of Electrophysiological Kinesiology. P.A. Anderson, D.J. Hobart and J.V. Danoff (Eds.). Netherlands, Elsevier, 1991, pp. 23-25.

Richardson-Bond, C., Coratti, L., Mast, A., Wolf, S.L., Catlin, P.A., Segal, R.L. and English, A.W.: Patterns of electromyographic activity in the human lateral gastrocnemius muscle during weightbearing and non-weightbearing tasks, Electromyographical Kinesiology: Proceedings of the 8th Congress of the International Society of Electrophysiological Kinesiology. P.A. Anderson, D.J. Hobart and J.V. Danoff (Eds.). Netherlands, Elsevier, 1991, pp. 65-68.

McMahon, T., Craft, T., Mason, L., Pianta, T., Couch, L., Segal, R.L., Wolf, S.L., English, A.W. and Catlin, P.A.: Normalized electromyographic activity patterns in human extensor carpi radialis longus and flexor carpi radialis muscles: Differential and total activity, Electromyographical Kinesiology: Proceedings of the 8th Congress of the International Society of Electrophysiological Kinesiology. P.A. Anderson, D.J. Hobart and J.V. Danoff (Eds.). Netherlands, Elsevier, 1991, pp. 39-42.

Wolf, L.B., Segal, R.L., Wolf, S.L. and Nyberg, R.: A quantitative analysis of integrated surface and percutaneous EMG activity in lumbar erector spinae of normal young women, Spine, 16 (1991) 155-161.

Segal, R.L. and Youssef, E.: Comparison of wrist movements in normals and brain-injured individuals. Arch. Phys. Med. and Rehab. 72 (1991) 454-459.

Segal, R.L., Wolf, S.L., DeCamp, M.J., Chopp, M.T. and English, A.W.: Anatomical partitioning of three multiarticular human muscles. Acta Anatomica 142 (1991) 261-266.

Wolf, S.L. and Segal, R.L.: Conditioning of the spinal stretch reflex: Implications for rehabilitation. Phys. Ther., 70 (1990) 652-656.

Evatt, M.L. Wolf, S.L. and Segal, R.L.: Modification of human spinal stretch reflexes: Preliminary studies, Neurosci. Lett. 105 (1989) 350-355.

Segal, R.L. and Beckstead, R.M.: Distribution of corticotectal axons from the caudal part of the anterior ectosylvian sulcus in the cat, Neurosci. Lett. 102 (1989) 173-178.

Milidonis, M.K., Widmer, C.G., Segal, R.L. and Kraus, S.L.: Surface intraoral genioglossus EMG recording technique for kinesiological studies, Am. J. Ortho. Dentofac. Orthop. 94 (1988) 240-244.

Segal, R.L. and Beckstead, R.M.: The lateral suprasylvian corticotectal projection in cats, J. Comp. Neurol., 225 (1984) 259-275.

Segal, R.L., Beckstead, R.M., Kersey, K.S. and Edwards, S.B.: The prefrontal corticotectal projection in the cat, Exp. Brain Res., 51 (1983) 423-432.

Refereed Proceedings and Transactions

Segal, R.L. and Wolf, S.L.: Conditioning the biceps brachii spinal stretch reflex in able-bodied and neurological subjects. Proceedings of 23rd Annual Meeting Association for Applied Psychophysiology and Biofeedback (1992) 1-5. **One of three papers selected as outstanding papers.**

Segal, R.L. and Wolf, S.L.: Down-training of hyperactive spinal stretch reflexes in patients with chronic cervical spinal cord injuries. J. Neurotrauma (1993) 10:S125.

Refereed Presentations

Segal, RL “Research Funding Symposium – Part 2: Perspectives on Research Mentoring” Combined Sections Meeting, Orlando, Fl, February 2021 (Organizer: Mary Rodgers) ACCEPTED

Segal, RL “Blazing the Trail: Developing the Next Generation of Education Researchers” Combined Sections Meeting, Orlando, Fl, February 2021 (Organizer: Gail Jensen and Rick Segal) ACCEPTED

Segal, RL “Research Funding Symposium: Part 2, Perspectives from Funded PT Researchers” Combined Sections Meeting, Denver Colorado, February 13, 2020

(Organizer: Mary Rodgers; Other Speakers: Kelly Westlake, Shailesh Kantak, Szu-Ping Lee, Marcie Hayes, David Scalzitti)

Segal, RL "Expanding movement and rehabilitation sciences research in DPT programs in the US" at ELC on October 13, 2018 (other speakers: Jules Dewald, PT, PhD and Stacy Fritz, PT, PhD)

Segal, RL "Early Career Grant Writing Workshop" at CSM on February 21, 2018 (Organizers: George Hornby and Jill Stewart)

Dewald, J., Binder-Macleod and Segal, R.L. "Reach for the Stars: Faculty Research Development" at CSM on February 23, 2018

Segal, RL "Early Career Grant Writing Workshop" at CSM on February 4, 2015 (Organizers: George Hornby and Mike Lewek)

Williams, DSB, Wurzinger, BW, Segal, RL, Steinbaker, CR, Ratcliff, OM, Kline, PW. "Magnetic Resonance Analysis of Intrinsic Foot Musculature during Running in Shod and Barefoot Conditions" ACSM, May 2012. San Francisco, CA.

Makihara, Y, Segal, RL, and Thompson, A: Operant conditioning of soleus H-reflex and its effects on locomotion: Behavior of synergist muscles. Human Movement Science Research Day, February 26, 2010. Chapel Hill, NC

Segal, R.L., English, A.W., Gregor, R., Nichols, T.R., Lewek, M.L., McCulloch, K. and Mercer, V. "Translation of basic science research into the clinic: Spinal Circuits and the Musculoskeletal System." Workshop organizer/speaker. Combined Sections Meeting (CSM) of American Physical Therapy Association, February 11, 2009, Las Vegas, NV

Segal, R.L: "Neuromuscular partitioning of the human lateral gastrocnemius: Level of electromyographic activity during isometric tasks". Invited platform presentation at the 10th Congress of the International Society of Electrophysiological Kinesiology, Charleston, South Carolina, 1994

Segal, R.L: "Revisiting the surface EMG recording: Implications for muscle compartments in clinical practice". Invited speaker at the Symposium of the Twenty-fifth Annual Meeting of the Association for Applied Psychophysiology and Biofeedback, Atlanta, Georgia, 1994.

Segal, R.L and Wolf, S.L. "Muscle compartmentalization and relevance to therapy". Plenary session at the 10th Congress of the International Society of Electrophysiological Kinesiology, Charleston, South Carolina, 1994.

Segal, R.L: "Down-training of hyperactive spinal stretch reflexes in patients with chronic cervical spinal cord injuries". Invited to present poster at the Second International Neurotrauma Symposium, Glasgow, Scotland. 1993

Segal, R.L:"Conditioning of the spinal stretch reflex in able-bodied and neurological patients". Invited platform presentation at the Applied Psychophysiology and Biofeedback Annual Meeting, Colorado Springs, Colorado,.1992 **Outstanding paper platform presentation.**

Segal, R.L: "The spinal stretch reflex and spinal cord injury." Invited speaker at the symposium of the American Paraplegia Society, 38th Annual Meeting, Las Vegas, Nevada, 1992.

Segal, R.L: "Modification of spinal stretch reflexes through operant conditioning: A continuing education course given at the Neuro-Developmental Treatment Association National Meeting, Atlanta, Georgia,1991.

Segal, R.L: "Anatomical evidence for partitioning of human two-joint muscles". Invited platform presentation to the Muscle Function in Normal and Pathological States: A Research Retreat, New Hampton, New Hampshire,1991.

Segal, R.L: "Understanding and treating pain in the spinal cord injured patient." Invited speaker at the American Pain Society National Meeting Symposium, St. Louis, Missouri, 1990

Segal, R.L: "Comparison of targeted elbow flexion in hemiparetic and normal individuals". Invited platform presentation at the American Physical Therapy Association Annual Conference, Nashville, Tennessee, 1989.

Segal, R.L: "Neuromuscular foundation of motor control..A basic and applied science". A continuing education course given at the American Physical Therapy Association, Ohio Chapter Annual Conference, Columbus, Ohio, 1989.

Segal, R.L: "The effect of feedback and operant conditioning on the amplitude of the spinal stretch reflex of the biceps brachii in stroke patients with upper extremity spasticity". Invited to present a poster at the American Physical Therapy Association, Georgia Chapter, Helen, Georgia, 1988.

Segal, R.L: "Wrist movement velocity in normal and spastic individuals". Invited platform presentation to the Georgia Colloquium on Human Motion and Gait Analysis, Atlanta, Georgia,1987.

Segal, R.L: "Some frontal cortical projections to the cat superior colliculus". Invited to present a poster at the American Association of Anatomists meeting in Indianapolis, Indiana,1982

Refereed Abstracts

Liang, JN, Segal, RL: Impaired reciprocal inhibition of plantarflexor H-reflex correlates with level of dorsiflexor muscle activity post-stroke. Combined Sections Meeting of American Physical Therapy Association, February 21, 2016, Anaheim, CA

Makihara, Y, Segal, RL, and Thompson, A: Operant conditioning of soleus H-reflex and its effects on locomotion: Behavior of synergist muscles. Human Movement Science Research Day, February 26, 2010. Chapel Hill, NC

Giordano, S.B., Makar, M.S., Burgess, A.R., Abelew, T.A. and Segal, R.L.: End-Point Force Trajectories Produced By Selected Calf Muscles Due To Electrical Stimulation. 2005 Workshop on Investigation of Human Muscle Function In Vivo, Nashville, TN (2005)

Mushahwar, V.K., Tang L., and Segal, R.L.: Evidence for programmed movements in kinematic and EMG activity patterns. XII Congress of the International Society for Electrophysiology and Kinesiology (1998).

Wolf, S.L. and Segal, R.L.: Efforts to condition vertical loading responses to a dynamic angular perturbation in older adults. XII Congress of the International Society for Electrophysiology and Kinesiology (1998).

Segal, R.L. and Wolf, S.L.: Down-training of hyperactive spinal stretch reflexes in patients with chronic cervical spinal cord injuries. Second International Neurotrauma Symposium (1993).

Segal, R.L. and Wolf, S.L.: Operant conditioning of human spinal stretch reflexes. Ann. Neurol. 28 (1990) 251.

Segal, R.L., Wolf, S.L., Catlin, P.A., Cooke, L., Johnson, L., McCallum, A., Murzin, D., Rubel, K. and Evatt, M.: Conditioning the human spinal stretch reflex in normal subjects and stroke patients. Phys. Ther. 70(1990) R289.

Segal, R.L., Catlin, P.A., Davis, K.D., Haskin, R.M., Jennette, A., Maurer, D. and McMullan, D.: Targeted elbow flexion in hemiparetic and normal individuals. Phys. Ther. 69 (1989) R128.

Segal, R.L., Kersey, K. and Edwards, S.B.: Some frontal cortical projections of the cat superior colliculus, Anat. Rec. 202 (1982) 172 A.

Non-refereed Publications

Segal, R.L., Cheng, L.-S., Catlin, P.A., Wolf, S.L. and English, A.W.: Neuromuscular partitioning of the human lateral gastrocnemius: Level of electromyographic activity during isometric tasks, Proceedings of the 10th Congress of the International Society of Electrophysiological Kinesiology. (1994)

Segal, R.L. Commentary on: Depression of Hoffmann reflexes following voluntary contractions and implications of proprioceptive neuromuscular facilitation therapy. Phys. Ther. 71 (1991) 329-331.

Wolf, S.L. Wolf, L.B. and Segal, R.L.: The relationship of extraneous movements to lumbar paraspinal muscle activity: Implications for EMG biofeedback training applications to low back pain patients. Biofeedback and Self Regulation 14 (1989) 63-74.

Non-refereed Presentations

Segal, R.L.: “Introduction to review process and grant writing critical steps” GAMER grantwriting workshop, November, 2019, Charleston, SC

Segal, R.L.: “Funding from Foundations and Other Non-Federal Sources; Building Your Portfolio” GAMER grantwriting workshop, November, 2019, Charleston, SC

Segal, R.L. and Dewald, J, “Grant Writing Critical Steps”, IREK K12 Boot camp, August, 2019, Chicago, IL

Segal, R.L. “Stroke Pathophysiology”, IREK K12 Boot camp, August, 2019, Chicago, IL

Segal, R.L. “Definitions of Disabilities”, IREK K12 Boot camp, August, 2019, Chicago, IL

Segal, R.L. “Spinal Cord Plasticity”, IREK K12 Boot camp, August, 2019, Chicago, IL

Segal, R.L.: Building Character is the Key to Being an Excellent PT and Person. Invited Presentation, Emory University Physical Therapy Commencement, May 13, 2019

Segal, R.L.: Integration of research, education and practice to benefit our patients: Is Education Research the Answer? Or Searching for the Holy Grail! Invited presentation, UTMB, April 29, 2019

Segal, R.L.: Tenure and Tenure Process, Women’s Studies Initiative (WSI) Career Development Workshop, March 15, 2019, Charleston, SC

Segal, R.L.: “Introduction to review process and grant writing critical steps” GAMER grantwriting workshop, September, 2018, Charleston, SC

Segal, R.L.: “Funding from Foundations and Other Non-Federal Sources; Building Your Portfolio” GAMER grantwriting workshop, September, 2018, Charleston, SC

Segal, R.L. and Dewald, J, “Grant Writing Critical Steps”, IREK K12 Boot camp, August, 2018, Chicago, IL

Segal, R.L. “Stroke Pathophysiology”, IREK K12 Boot camp, August, 2018, Chicago, IL

Segal, R.L. “Definitions of Disabilities”, IREK K12 Boot camp, August, 2018, Chicago, IL

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Segal, R.L. “Stroke Pathophysiology”, IREK K12 Boot camp, August, 2017, Chicago, IL

Segal, R.L. “Definitions of Disabilities”, IREK K12 Boot camp, August, 2017, Chicago, IL

Segal, R.L. “Spinal Cord Plasticity”, IREK K12 Boot camp, August, 2017, Chicago, IL

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Segal, R.L. “Stroke Pathophysiology”, IREK K12 Boot camp, August, 2015, Chicago, IL

Segal, R.L. “Definitions of Disabilities”, IREK K12 Boot camp, August, 2015, Chicago, IL

Segal, R.L. “Spinal Cord Plasticity”, IREK K12 Boot camp, August, 2015, Chicago, IL

Segal, R.L., “Critical Steps to Completing, Submitting and Receiving Funding for your Proposal” TIGRR Mentorship Workshop, January 2016, Charleston, SC (Invited talk)

Segal, R.L., “Critical Steps to Completing, Submitting and Receiving Funding for your Proposal” TIGRR Mentorship Workshop, January 2015, Charleston, SC (Invited talk)

Segal, R.L. and Dewald, J, “Grant Writing Critical Steps”, IREK K12 Boot camp, August, 2014, Chicago, IL

Segal, R.L. “Stroke Pathophysiology”, IREK K12 Boot camp, August, 2014, Chicago, IL

Segal, R.L. “Definitions of Disabilities”, IREK K12 Boot camp, August, 2014, Chicago, IL

Segal, R.L. “Spinal Cord Plasticity”, IREK K12 Boot camp, August, 2014, Chicago, IL

Segal, R.L., “Critical Steps to Completing, Submitting and Receiving Funding for your Proposal” TIGRR Mentorship Workshop, January 2014, Chapel Hill, NC (Invited talk)

Segal, R.L., “Critical Steps to Completing, Submitting and Receiving Funding for your Proposal” TIGRR Mentorship Workshop, January 2013, Chapel Hill, NC (Invited talk)

Segal, R.L., “Critical Steps to Completing, Submitting and Receiving Funding for your Proposal” Enhancing Rehabilitation Research in the South (ERRIS) Mentorship Workshop, January 2012, Charlottesville, VA (Invited talk)

Segal, R.L., “Critical Steps to Completing, Submitting and Receiving Funding for your Proposal” Enhancing Rehabilitation Research in the South (ERRIS) Mentorship Workshop, January 2011, Charlottesville, VA (Invited talk)

Segal, R.L., “Critical Steps to Completing, Submitting and Receiving Funding for your Proposal” Enhancing Rehabilitation Research in the South (ERRIS) Mentorship Workshop, January 2010, Charlottesville, VA (Invited talk)

Segal, RL, Man vs. Machine: Technology Meets SCI Rehabilitation, UNC's 4th Annual SCI Conference, Chapel Hill, NC, November 2, 2012

Segal, RL, Excellence in Academic Physical Therapy Program organizer and presenter, APTA Education Leadership Conference, Clearwater, FL, October 2011

Segal, RL., Adaptive Plasticity of the Spinal Cord, April 27, 2010, Invited presentation at WakeMed outpatient rehab

Segal, RL., What does it take to get a job? Human Movement Science Research Day, February 26, 2010. Chapel Hill, NC (Invited talk)

Segal, RL., and Matrunick, C., Bone Density with SCI. UNC PT Clinical Rounds, February, 2010. Chapel Hill, NC

Segal, RL., Imaging Muscle Activity. Biomechanics Special Interest Group of Research Section of APTA, February, 2010, San Diego, CA (Invited talk)

Segal, R.L., "Critical Steps to Completing, Submitting and Receiving Funding for your Proposal" Enhancing Rehabilitation Research in the South (ERRIS) Mentorship Workshop, January 17, 2009, Charlottesville, VA (Invited talk)

Segal, R.L., "Critical Steps to Completing, Submitting and Receiving Funding for your Proposal" Enhancing Rehabilitation Research in the South (ERRIS) Mentorship Workshop, January 19, 2008, Charlottesville, VA (Invited talk)

Segal, R.L., "Overview of Rehabilitation Research at UNC", Rehabilitation Engineering Workshop, May 21, 2007 (Invited talk)

Segal, R.L., "SCI Research Update: Taking Steps Forward", Pitt Memorial Hospital, Greenville, NC, March 16, 2007 (Invited talk)

Sandstrom, R. Segal, R and Searcy, C: "How to Use the School Reports (and Other Resources), Education Leadership Conference, October 6, 2006 (Invited talk)

Segal, R.L., "SCI Research Update: Taking Steps Forward", North Carolina Spinal Cord Injury Association Fall Meeting, Raleigh, NC, invited talk, August 26, 2006.

Segal, R.L., "Do Good", Emory University, Doctor of Physical Therapy, Commencement Address, Atlanta, GA, invited talk, May 15, 2006.

Segal, R.L., "Assessing and modifying muscle activation patterns using non-invasive methods" Stroke Roadmap Group, UNC at Chapel Hill, Chapel Hill, NC, invited talk, February, 2006

Segal, R.L., "Assessing muscle activation patterns using MRI" at "New Developments in Neural Control of Locomotion" Symposium at Georgia Tech, Atlanta, GA, invited talk, June 29, 2005.

Segal, R.L., "Assessing Muscle Activity Using MRI". Department of Rehabilitation Medicine, University of Colorado Health Sciences Center, Denver, CO, October 7, 2004. Seminar, 2004.

Segal, R.L., "Role of Research in Physical Therapy Curricula". Department of Health Sciences, James Madison University, Introduction to Physical Therapy Course, October 20, 2004, Class.

Segal, R.L., "Plasticity of Spinal Circuits". Emory University Neuroscience Program, Atlanta, GA. Frontiers in Neuroscience Seminar, 1998.

Segal, R.L., "Operant Conditioning of Spinal Reflexes". Emory Research Symposium: Motor Function & The Spinal Cord, Atlanta, GA. 15 minute talk, 1998.

Segal, R.L., "Neural Plasticity: A Robust Resource for Neurorehabilitation". Society for Neuroscience, Atlanta Chapter, Spring Symposium on Neural Injury and Repair, Atlanta, GA, April 4, 1998. Seminar.

Segal, R.L., "Plasticity of Spinal Circuits". Morehouse College, Atlanta, GA. Seminar, 1998.

Segal, R.L., "What are these things called neuromuscular compartments". Department of Rehabilitation Medicine, Emory University School of Medicine, Atlanta, Georgia., 1996.

Segal, R.L., "Physiological Monitoring For Enhanced Control of Movement and Posture". Physical Therapy Association of Georgia and Tennessee Physical Therapy Association, Joint Conference. Continuing Education Course with Drs. Steven Wolf and Carol Coogler, 1996.

Segal, R.L., Annual Meeting of the American Society of Biomechanics, Atlanta, GA. Laboratory demonstration, 1996.

Segal, R.L., "Managing spasticity in the era of managed care". Talk entitled "Pathophysiologies of spasticity: The myth of a single theory". Department of Rehabilitation Medicine, Emory University School of Medicine, Continuing Education Course. Platform, 1995.

Segal, R.L., "Operant conditioning of spinal reflexes: Theoretical and clinical considerations". Department of Rehabilitation Medicine, Emory University School of Medicine, Atlanta, Georgia, Seminar, 1994.

Segal, R.L., Israeli Biofeedback Association, Certification Course, Tel Aviv, Israel, Instructor, 1993.

Segal, R.L., "Modulation of segmental reflexes in humans". Department of Physiology, Emory University School of Medicine, Atlanta, Georgia, Seminar, 1992.

Segal, R.L., "Medical diagnosis of musculoskeletal disorders: Directions for future research". National Center for Medical Rehabilitation Research, NICHD, NIH, Bethesda, Maryland, Conference: Summary talk on basic sciences and measure of function, 1992.

Segal, R.L., Emory University Law School, Masters in Litigation Moot Court, Atlanta, Georgia, Expert witness, 1991.

Segal, R.L., "The decade of the brain: neuronal plasticity in rehabilitation". Greater Atlanta Association of Rehabilitation Nurses: 1991 Educational Seminar, Atlanta, Georgia, Continuing education course, 1991.

Segal, R.L., "Modulation of spinal reflexes". Atlanta Chapter Society for Neuroscience, Frontiers in Neuroscience, Atlanta, Georgia, Seminar, 1991.

Segal, R.L., and S.L. Wolf, "Application of conditioning the spinal cord to humans". Wadsworth Center for Laboratories and Research, Albany, New York. Seminar, 1990.

Segal, R.L., "Starting clinical research". Region 6 of the Physical Therapy Association of Georgia in Atlanta.. In-service, 1990.

Segal, R.L., Emory University Law School, Masters in Litigation Moot Court, Atlanta, Georgia, Expert Witness, 1989.

Segal, R.L., Emory University Law School, Masters in Litigation Moot Court, Atlanta, Georgia, Expert Witness, 1987.

Segal, R.L., "Advanced training in Physical Therapy". American Physical Therapy Association, Student Conclave, Rock Eagle, Georgia. Platform, 1986.

Segal, R.L., "Gross anatomy of the shoulder" Occupational Therapy Division, Center for Rehabilitation Medicine, Atlanta, Georgia. Demonstration, 1985.

Segal, R.L., "Some new concepts in motor control", Occupational Therapy Division, Center for Rehabilitation Medicine, Atlanta, Georgia. Seminar, 1985.

Segal, R.L., "Anatomical relations of the skull and brain". National Head Injury Foundation, Georgia Association, Atlanta, Georgia. Seminar, 1985.

Segal, R.L. "Motor deficits in head injured patients", Region 9 of the Physical Therapy Association of Georgia in Athens, Georgia,. Seminar, 1984.

Segal, R.L., "Contemporary issues in Physical Therapy", Masters in Physical Therapy Graduation Address, Emory University, Atlanta, Georgia, 1984.

Non-Refereed Abstracts:

Title: Operant conditioning of the soleus H-reflex in people with and without chronic CNS injury. Authors: Gill CR, Makihara Y, Segal RL, Wolpaw JR, Thompson AK 2018, Society for Neuroscience, San Diego, CA

Title: Morphological and reflex properties of soleus during ankle flexion
Authors: Aviroop Dutt-Mazumder (sponsor), Richard L. Segal, Leah Davis, Aiko Thompson1, Jesse Dean 2017, Society for Neuroscience

Title: Effects of up and down slopes on the soleus H-reflex during standing
Authors: Rick Segal (sponsor), Aviroop Dutt-Mazumder, Aiko Thompson 2017, Society for Neuroscience

Title: Operant down-conditioning of the soleus H-reflex during walking in people after stroke: feasibility assessment
Authors: Gill CR, Segal RL, Feng W, Thompson AK 2017, Society for Neuroscience

Liang, JN and Segal, RL: Magnitude of reciprocal inhibition on plantarflexor H-reflex increases non-linearly with level of dorsiflexor muscle activity in non-neurologically impaired humans. Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2015. Online.

Makihara, Y, Segal R.L., Wolpaw, JR and Thompson, A.K.: Operant down-conditioning of the soleus H reflex in normal humans does not induce long-term changes in gastrocnemius H-reflexes and does not appear to disturb locomotion. 645.17, 2013 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2013. Online.

Segal, R. L. and Walker, H.: Preliminary studies on operant conditioning Tibialis Anterior H-reflex in people with stroke: Conditioned response. 645.20, 2013 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2013. Online.

Segal, R. L.: Preliminary studies on operant conditioning Tibialis Anterior H-reflex in people with stroke: Background control. 351.24, 2012 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2012. Online.

Makihara, Y, Segal R.L., Abel, B.M., Wolpaw, JR and Thompson, A.K.: Effects of soleus H-reflex down-conditioning on gastrocnemius H-reflexes in humans. 910, 2011 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2011. Online.

Segal, R.L., Makihara, Y, Abel, B.M. and Thompson, A.K.: Effects of operant conditioning of soleus H-reflex on locomotion. 82.13, 2010. Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2010. Online.

Makihara, A.K., Thompson, A.K., Abel, B.M., Segal, R.L.: Operant down-conditioning of soleus H-reflex in humans: Effects on synergist muscles. 82.15, 2010. Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2010. Online.

Makihara, Y, Thompson, A and Segal, RL: Operant conditioning of soleus H-reflexes: Effect of background activity on response in people with spinal cord injury and able-bodied subjects. 79.12, 2009 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2009. Online.

Segal, R.L., Arya, S and Makihara, Y. Operant conditioning of soleus H-reflexes: Baseline and between session variability in people with spinal cord injury. 79.13, 2009 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2009. Online.

Segal, R.L. and Makihara, Y. Operant conditioning of soleus H-reflexes: control data. 2008 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2008. Online.

Makihara, Y., Cwiklinski, M.M., and Segal, R.L. Effects of Soleus H-reflex conditioning on gait in humans with incomplete spinal cord injuries: Initial and intermediate gait assessments. Human Movement Science Research Symposium, Chapel Hill, NC, February 22, 2008.

Ganton, A.J., Segal, R.L., Clark, BD and Mushahwar, V.K. Inter-joint coupling during voluntary movement preparation. Program No. 792. 2006 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2006. Online.

S.B. Giordano, T.A. Abelew, A.R. Burgess, R.L. Segal. Comparing stimulation protocols to elicit fatigue in the lateral gastrocnemius muscle Program No. 397.8.

2005 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2005. Online.

Segal, R.L., S.B. Giordano, R.N. Grier. Relationship of leg muscle activity during eccentric versus concentric contractions Program No. 399.10. 2005 Abstract Viewer/Itinerary Planner. Washington, DC: Society for Neuroscience, 2005. Online.

Segal, R.L., and Ward, M.: Correlation of peroneus activity with triceps surae activity. 188.17 (2004) Abstract, Washington, D.C., Society for Neuroscience.

Segal, R.L., Poeppelman, A., Ward, M. and Giordano, S.B.: Correlation of magnetic resonance imaging T2 times with electromyographic activity. 392.8 (2003) Abstract, Washington, D.C., Society for Neuroscience.

Giordano, S.B., Marquardt, K., Nelson, N., Rush, S., Simoneaux, S., Song, A.W. and Segal, R.L.: Variance of magnetic resonance imaging T2 times among tasks. 392.7 (2003) Abstract, Washington, D.C., Society for Neuroscience.

Segal, R.L., Song, A.W. and Hopkins, K.: Magnetic resonance imaging T2 times of leg muscles: Unilateral versus bilateral heel raises. Neurosci. Abstr. 167.7 (2001).

Segal, R.L., Song, A.W., Hopkins, K. and Abelew, T.A.: Magnetic resonance imaging T2 times of leg muscles following heel raises. Neurosci. Abstr. 26 (2000).

Livingston, B.P., Segal, R.L., Song, A.W., Hopkins K., English, A.W. and C.C. Manning: Magnetic resonance imaging t2 times of extensor carpi radialis longus and brevis after isometric exercises. Neurosci. Abstr. 25 (1999).

Segal, R.L., Catlin, P.A., Krauss, E.W., Merick, K.A., Robilotto, J.B.: Anatomical partitioning of three human forearm muscles. Neurosci. Abstr. 25 (1999).

Mushahwar, V.K., Tang L.E. and Segal, R.L.: Evidence for programmed movements and interjoint coupling in kinematic and EMG activity patterns. Proceedings of Peripheral and Spinal Mechanisms in the Neural Control of Movement. 8.10 (1998).

Segal, R.L., Catlin, P.A., Pamela Bradford, Genevieve Clissold, Melanie Dennard, Jim Prussack, Planar and off-planar wrist movements. Neurosci. Abstr. 24: 653.19 (1998).

Segal, R.L., Catlin, P.A., Karin Casey, Dayna Dombkowski and Julie Frederick, The functional role of putative neuromuscular partitions in the extensor carpi radialis longus and the flexor carpi radialis. Neurosci. Abstr. 23: (1997).

Wolf, S.L., Segal, R.L., Catlin, P.A., Slaven, R.L., Taffs, J.K., Trees, H.C. and Vickers, E.F.: Conditioning human longer latency reflex responses in the biceps brachii. Neurosci. Abstr. 22: 58.5 (1996).

Prather, J.F., Deneff, J.L., Duncan, T.L., Heinzmann, J.M., Smith, E.M.C. and Segal, R.L.: Spike triggered averaging of motor unit activity in putative partitions of human biceps brachii. Neurosci. Abstr. 22: 264.2 (1996).

Segal, R.L., Deneff, J.L., Duncan, T.L., Heinzmann, J.M., Smith, E.M.C. and Prather, J.F.: Partitioning of human biceps brachii. Neurosci. Abstr. 22: 264.3 (1996).

Segal, R.L., Catlin, P.A., Ash, M.L., Phillips, C.M., Ruehle, D.D. and Ruff, P.A.: Examining diurnal patterns of human biceps brachii spinal stretch reflexes. Neurosci. Abstr. 21: 273.2 (1995).

Krutulis, J.S., Jacobs, D., Segal, R.L., Wolf, S.L. and English, E.W.: Operant conditioning of the human biceps brachii spinal stretch reflex may alter neuromuscular synergies of the upper limb. Neurosci. Abstr. 21: 276.5 (1995).

Wolf, S.L., Segal, R.L., Catlin, P.A., Byrne, C.A., Palm, T.E., Sedgwick, D.E. and Snyder, A.H.: Decreasing sway magnitude to enhance postural control in older, non-faller adults. Neurosci. Abstr. 21: 472.12 (1995).

Mann, M.H., Wolf, S.L. and Segal, R.L.: Neuromuscular partitioning of the human biceps brachii long head. Neurosci. Abstr. 20 (1994).

Wolf, S.L., Catlin, P.A., Segal, R.L., Pate, P., Raleigh, T., Tschorn, J. and Watson, H.: Determining consistency of elbow joint threshold angle in spastic muscles. Neurosci. Abstr. 20 (1994).

Segal, R.L., Catlin, P.A., Brideau, A., Capps, L., Poulsen, E., Thomasson, P., Siegel, S. and English, A.W.: Neuromuscular partitioning of the human extensor carpi radialis muscle. Neurosci. Abstr. 19 (1993) 66.5.

Wolf, S.L., Segal, R.L., Nichols, T.R., Vitek, J.L. and Watts, R.L.: Functional changes with stretch reflex conditioning. Neurosci. Abstr. 19 (1993) 655.3.

Singleton, L., Ricketson, V., Hamilton, J., Catlin, P., Segal, R. and Vine, P.: The effect of an orally-inflated air splint on electromyographic activity and range of motion of hyperactive biceps and triceps. Phys. Ther. 72 (1992) S53.

Segal, R.L. and Wolf, S.L.: Concurrent brachioradialis changes during training of biceps brachii spinal stretch reflexes in spinal cord injured patients. Neurosci. Abstr. 18 (1992) 589.4.

Segal, R.L. and Wolf, S.L.: Initial studies on the modification of spinal stretch reflexes in spinal cord injured patients. Neurosci. Abstr. 17 (1991) 84.7.

Segal, R.L., Catlin, P.A., Barker, C., Broadbent, P., Cockerham, A., Reaver, L. and Wolf, S.L.: Modification of the human biceps spinal stretch reflex: Preliminary studies on prolonged control and follow-up periods. Neurosci. Abstr. 16 (1990).

Wolf, S.L., Catlin, P.A., Segal, R.L., English, A.W., McMahon, T., Craft, T., Mason, L., Pianta, T. and Couch, L.: Normalized electromyographic activity patterns in human extensor carpi radialis longus and flexor carpi radialis muscles: Differential and total activity. Neurosci. Abstr. 16 (1990).

English, A.W., Wolf, S.L., Catlin, P.A., Segal, R.L., Richardson-Bond, C., Coratti, L. and Mast, A.: Patterns of electromyographic activity during weightbearing and non-weightbearing tasks. Neurosci. Abstr. 16 (1990).

DeCamp, M.J., Chopp, M.T., Wolf, S.L., Segal, R.L. and English, A.W.: Preliminary morphological studies examining compartments in two-joint human muscles. Neurosci. Abstr. 15 (1989) 213.14

Segal, R.L., Catlin, P.A., Cooke, R., Johnson, L., McCallum, A., Murzin, D., Rubel, K. and Wolf, S.L.: Preliminary studies on modifications of hyperactive spinal stretch reflexes in stroke patients. Neurosci. Abstr. 15 (1989) 363.17

Wolf, S.L., Evatt, M.L. and Segal, R.L.: Preliminary studies on modification of human spinal stretch reflexes. Neurosci. Abstr. 15 (1989) 363.18

Segal, R.L. and Beckstead, R.M.: Some anterior ectosylvian corticofugal projections in cats. Neurosci. Abstr. 13 (1987) 49.12.

Segal, R.L. and Youssef, E.: Analysis of wrist movement speed in closed head injured subjects with spasticity and non-neurologically involved subjects. Neurosci. Abstr. 12 (1986) 354.9

Segal, R.L. and Beckstead, R.M.: The lateral suprasylvian corticotectal projection in cats. Neurosci. Abstr. 9 (1983) 14.11

Segal, R.L., Edwards, S.B. and Beckstead, R.M.: Identification of visual cortical areas that project to the superficial or deep layers of the superior colliculus in cats. Neurosci. Abstr. 8 (1982) 191.3.

Other

Segal, R.L., "Assessing Muscle Activity in Human Subjects". Spinal Cord Research Center, Emory University. 2003.

Segal, R.L., "Dynamic Magnetic Resonance Imaging as a tool to study muscle function". Department of Rehabilitation Medicine Grand Rounds, Emory University.

Segal, R.L., 1998 Panel Discussion on Training Grant Issues, Training Conference, National Center For Medical Rehabilitation Research, NICHD, 1998.

Segal, R.L., "Control of Sway in Humans" Journal Club. Emory University Motor Control Group. 1996.

Segal, R.L., Emory University Motor Control Group, Atlanta, GA. Contribution of C3-4 Proprioceptive Neurons to Forelimb Movement. Journal Club, 1996

Segal, R.L., "Operant conditioning of hyper-active stretch reflexes". St. Joseph's Hospital, Physical Therapy Department, Atlanta, Georgia, In-service, 1994.

Segal, R.L., "Operant conditioning of hyper-active stretch reflexes". Northlake Regional Hospital, Physical Therapy Department, Atlanta, Georgia. In-service, 1994.

Segal, R.L., "Concurrent brachioradialis changes during training of biceps brachii spinal stretch reflexes in spinal cord injured patients". Society for Neuroscience 22nd Annual Meeting, Anaheim, California, Poster, 1992.

Segal, R.L., "Initial studies on the modification of spinal stretch reflexes in spinal cord injured patients". Society for Neuroscience 21st Annual Meeting, New Orleans, Louisiana, Platform, 1991.

Segal, R.L., "Some anterior ectosylvian corticofugal projections in cats". Society for Neuroscience 17th Annual Meeting in New Orleans, Louisiana, Poster, 1987.

Segal, R.L., "Analysis of wrist movement speed in closed head injured subjects with spasticity and non-neurologically involved subjects". Society for Neuroscience 16th Annual Meeting in Washington, D.C., Poster, 1986.

Segal, R.L., "The lateral suprasylvian corticotectal projection in cats". Society for Neuroscience 13th Annual Meeting in Boston, Massachusetts, Poster, 1983.

Segal, R.L., "Identification of visual cortical areas that project to the superficial or deep layers of the superior colliculus in cats". Society for Neuroscience 12th Annual Meeting in Minneapolis, Minnesota, Poster, 1982.

TEACHING RECORD

Medical University of South Carolina

2016-present OT/PT 701 Neuroscience (Course director and lecturer; 4 credits)

University of North Carolina at Chapel Hill

Graduate

2009- 2013 NBIO 723b Cellular and Molecular Neurobiology (lecturer)
 2008-2013 HMSC 710, Kinesiological EMG (Co-director and lecturer; 3 credit hours)
 2009-2010 PHYT 750, Psychosocial Aspects of Disability and Illness (1 credit hour)
 2009 PHYT 701 – Motor Development and Human Movement Across the Lifespan (Musculoskeletal and Neuromuscular Development)
 2007-present PHYT 784 Neuromuscular PT (Cellular Neuropathology; Supraspinal Plasticity)
 2007-present PHYT 785 Neuromuscular PT (Spinal Cord Plasticity)
 2008 PHYT 754, Evidence Based Practice III (2 credit hours)
 2007-2008 PHYT 742, Pathology and Pharmacology (2 credit hours)
 2007-present CBIO 193, Functional Neuroanatomy (CNS Development; spinal cord injury; Multiple Sclerosis)
 2006-present Independent Study, HMSC program (2 credit hours)
 2005-present HMSC 801, Seminar

Undergraduate

2005-2007 AHSC-40, Introduction to Health Care professions, Lecture on Physical Therapy

North Carolina State University and MUSC

2013-Present Engineering

ISE 579 Rehabilitation Engineering I (3 Credit Hours; Instructor 1/3 of course)

Emory University

Courses

Physical Therapist:

2004- 2005 PHT 540a, Dynamics of Human Movement I, Gross Anatomy (instructor for one lecture and lab). 4 Credit hours
 2004- 2005 PHT 550c, Clinical Research III, Research proposal development II. Course director and instructor. 2 Credit hours
 2004- 2005 PHT 550b, Clinical Research II, Research proposal development I. Course director and instructor. 2 Credit hours
 1997- 2005 PHT 544b, Discussions on plasticity of spinal circuits, Physiologic basis for Physical Therapy, for Physical Therapy students, Emory University (approximately 2 hours per year)
 1994- 2005 PHT 530e, Lecturer on movement dysfunction, Excitability symptom complex, for Physical Therapy students, Emory University (approximately 10 hours per year)
 1994- 2005 PHT 530d, Lecturer on excitable properties of tissue, Mobility (Musculoskeletal) symptom complex, for Physical Therapy students, Emory University (approximately 2 hours per year)

- 1983- 2005 PHT 542, Course director and lecturer in Neuroscience for Physical Therapy students, Emory University (Approximately 40, two hour sessions per semester; write and grade all exams) **Primary teaching responsibility**. 5 Credit hours
- 1999- 2002 Rehabilitation Issues Seminar for Movement Science Trainees
- 1985 – 2003 PHT 550b-e, Clinical Research: Content advisor for student research group
- 1984 - 1988 PHT 540, Course director and lecturer in Gross Anatomy for Masters in Physical students, Emory University
- 1985, 1989, 1990 Directed studies advisor for Masters level Physical Therapy students, Emory University
- 1983- 1992 Course director for critical readings in Neuroscience for Masters level Physical Therapy students Emory University
- 1979 Course director and lecturer in therapeutic modalities course for Physical Therapy Assistants, Northern Virginia Community College
- 1975 - 1976 Lectures and Laboratory demonstrations for Allied Health students, Ohio State University

Physical Therapist and Graduate Program:

- 1992- 2005 IBS 708, Course director and instructor (6-7, 1.5 hour lectures), Biology of Movement Control II, Graduate level course covering supraspinal involvement in movement control with patient examples, Emory University. **Coordinated development of course**. 4 Credit hours.

Graduate Program

- 1992- 2005 IBS 707, Course director and instructor (4-5, 1.5 hour lectures), Biology of Movement Control I: Graduate level course covering peripheral and spinal structures related to movement control, Emory University. **Coordinated development of course**. 4 Credit hours

Lectures

Allied Health Students

- 1990 – 1998 Lectures and laboratories for Allied Health Anatomy, Emory University

Medical Students

- 1990 Lecture in Sophomore Medical Student Elective in Rehabilitation Medicine
- 1995- 2002 Discussion leader for Medical Neurobiology sessions on Spasticity, Emory University (Coordinated by Dr. T.R. Nichols).
- 1980 –1983 Lectures and Laboratory Demonstrations in Neuroscience and Gross Anatomy for Medical Students, University of Virginia

Graduate Programs:

Neuroscience Program and Georgia Tech students:

- 1998 – 2001 IBS 533, Lecture and lab instructor, Neuroanatomy for Neuroscience graduate students

Residency Program:

- 1998 "Alteration in mobility related to CVA and TBI" for Certification of Rehabilitation Registered Nurse Review Course". October 7, 1998 at Center for Rehabilitation Medicine.
- 1995-1996 Overview of Motor Control for Physical Medicine and Rehabilitation Medicine Residents
- 1990-1991 Journal Club for Rehabilitation Medicine Residents Emory University
- 1984-1991 Lectures in Neuroscience for Rehabilitation Medicine Residents

Other:

Instructor, Biofeedback Certification Course, Tel Aviv, Israel, October, 1993

Graduate Supervision, CommitteesPh.D. Students*Dissertation Advisees*

- 2002- 2008 Sara Giordano, Neuroscience program, Emory University
- 2006- 2011 Yukiko Makihara, Human Movement Science Program, UNC at Chapel Hill

Laboratory Rotations

- Spring, 2003 Amanda Poeppelman, Neuroscience program
- Fall, 2002 Sara Giordano, Neuroscience program
- Spring, 1999 Beven Livingston, Neuroscience program
- Spring, 1996 Jonathan Prather, Neuroscience program
- Spring, 1995 Andrew Kennedy, Neuroscience program
- Fall, 1994 Jay Krutulis, Neuroscience program
- July, 1993 Wesley Thayer, Incoming M.D./Ph.D. student
- Fall, 1992 Sondra Siegel, Neuroscience program, "Partitioning of human muscles".

*Dissertation Committees***1. Neuroscience Program**

- 2001-2004 Nathan Schultheiss
- 2000-2007 Beven Livingston
- 1996- 2002 Jon Prather
- 1995-2004 Debbie Backus
- 1994-1997 Sondra Siegel
- 1996 William T. Clower

2. Physiology and Pharmacology Program

- 1997- 1999 Valerie Haftel

3. Bioengineering Program (Georgia Tech)

- 2003- 2005 Andrea Lay

4. Biomedical Engineering Program (Emory University/Georgia Tech)

- 2003- 2007 Gelsy Torres-Oviedo

5. Biomedical Engineering Program (UNC-CH/NCSU)

- 2011- 2014 Benjamin Robertson

- 2012- 2014 **6. Human Movement Science Program (UNC-CH)**
 Clint Wutzke
 7. MUSC PhD Program
 2018- present Bryant Seaman

- Doctor of Physical Therapy (Emory University):
 2001- 2003 Stacy Donham, Kristin Marquardt and Noelle Nelson "Variance of magnetic resonance imaging T2 times among tasks"

- Post-doctoral students:
 2016- 2017 Aviroop Dutt-Mazumder, PhD
 2014- 2015 Jing-Nong Liang, PhD
 2008- 2009 Shruti Arya, PT, PhD
 2002- 2003 Richard Williams, Ed.D.
 1996- 1998 Vivian Mushahwar, Ph.D

- Residency Program:
 1996-1997 Patricia Hurford, M.D., "The functional role of putative neuromuscular partitions in the extensor carpi radialis longus and the flexor carpi radialis"

- Medical Student:
 1988-89 (with Steve Wolf) Marian Evatt, "Conditioning of the biceps brachii spinal stretch reflex in normal humans"

- Masters Students:
Master of Science in Neuroscience:
 1996 - 1997 Jay Krutulis, "Upper limb muscle activity due to tendon taps, elbow stretches and vibration"
Master of Medical Science:
 1994 Britta Smith, "Age-related changes of the triceps surae long latency stretch reflex"
 1992 Li-Shu Cheng, "Examination of synchronization between three anatomical partitions of the human lateral gastrocnemius"
 1992 Linda Rogers de Saca, "Immediate effects of the toe spreader on the tonic toe flexion reflex"
 1989 Cathy A. Beck, "Spinal mobility testing with the B200 Isostation: A comparison study of ROM, velocity and torque in spinal flexion and extension between subjects with and without low back pain as well as low back pain subjects with and without auto-traction treatment"
 1988 Lois Barnhart Wolf, "The relationship between integrated electromyographic activity in the lumbar portion of the erector spinae and active trunk range of motion in young women without low back pain"
 1986 Reva Paulsen Rauk, "Effect of rhythmic stabilization and progressive resistive exercise on timing of peak hemiparetic quadriceps and hamstring activity"
 1986 Lisa Ann Barton, "Effect of neurodevelopmental treatment technique on spasticity in adult hemiplegic upper extremities"

- 1986 Mary K. Milidonis, "Suprahyoid muscle activity in response to changes in anterior/posterior head posture"
- Master of Physical Therapy:*
- 1999- 2001 Kirsten Hawkins, Meredith Lipson and Lisa Topoleski "Proximal and distal nerve branch termination on endplate zones in the human extensor carpi radialis longus"
- 1998-2000 Jennifer Helmick, Kristin Johnston and Melinda Ostrom "The effect of vibration over biceps brachii and triceps brachii on the electromyographical activity of forearm muscles in able-bodied humans and patients post-stroke."
- 1997-1999 Elizabeth Krauss, Katherine Anne Merick and Jessica Robilotto, "Anatomical partitioning of three human forearm muscles: the flexor carpi ulnaris, the flexor digitorum profundus, and the extensor carpi ulnaris"
- 1997- 1998 Pamela Bradford, Genevieve Clissold, Melanie Dennard, Jim Prussack, "Non-planar wrist movements"
- 1997 Karin Casey, Dayna Dombkowski and Julie Frederick, "The functional role of putative neuromuscular partitions in the extensor carpi radialis longus and the flexor carpi radialis"
- 1996 (With Steven L. Wolf) Rebecca Slaven, Jami Taffs, Helen Trees and Elizabeth Vickers, "Conditioning of long latency stretch reflexes"
- 1996 Jennifer Deneff, Traci Duncan, Jill Heinzmann and Eudora Smith, "Compartmentalization of the long and short heads of the human biceps brachii muscle"
- 1995 Misty Ash, Deb Nanne, Chris Phillips and Andy Ruff, "Diurnal rhythms in human spinal stretch reflexes"
- 1994 (With Steven L. Wolf) Tricia Pate, Tina Raleigh, Julie Tschorn and Heather Watson, "Threshold angle as a function of starting angle in patients with spasticity"
- 1994 Karen Colombo, David Draper, Wendy Lenhard and Renee Mack, "Anatomical investigation of partitioning of the human flexor carpi radialis muscle using fluorescent tracers and end-plate staining"
- 1993 Andrea Brideau, Lolly Capps, Ellen Poulsen and Tricia Thomasson, "Neuromuscular partitioning of the human extensor carpi radialis longus muscle"
- 1993 Kristin Bloom, Karen Schaet and Sandy Stiffey, "Parallel effects of conditioning of the spinal stretch reflex (SSR) of one neuromuscular partition on the SSR of other partitions of the same muscle"
- 1992 Kim Blake, Kate Hartzog and Jill Sitlinger, "The effect of uptraining the biceps brachii spinal stretch reflex on reaction time in healthy individuals"
- 1990 Candace Barker, Patti Broadbent, Alexine Cockerham and Leslie Reaver, "Effects of operant conditioning and EMG biofeedback on synergist and antagonist muscles spinal stretch reflexes in normal healthy individuals"

- 1991 Sandra Harnden, Marcia Huffey and Linda Speaks, "The effect of operant conditioning and electromyographic biofeedback on the magnitude of the biceps brachii spinal stretch reflex in subjects with cerebrovascular accidents"
- 1989 L. Ruth Cooke, Laura Johnson, Ann McCallum, Kathy Rubel and Deborah Murzin, "The effect of feedback and operant conditioning on the amplitude of the spinal stretch reflex of the biceps brachii in stroke patients with upper extremity spasticity"
- 1987 Karen Davis, Rebekah Haskin, Alyson Jennette, Debra Maurer and Diane McMullan, "Velocity tracings produced during targeted elbow flexion in hemiparetic and normal individuals"
- 1985 Elizabeth Dicks, Geralynn Grieve and Joyce Rabinowitz, "The effects of static versus ballistic stretching on range of motion maintenance"

Other:

- 2003- present *Faculty Mentoring:*
 Enhancing Rehabilitation Research in the South (ERRIS) and Training in Grantsmanship for Rehabilitation Research (TIGRR) mentoring workshop. Mentees:
 Dr. Judy Burnfield, Rancho Los Amigos and University of Southern California
 Dr. Beth Fisher, University of Southern California
 Dr. Claudia Angeli, Jewish Hospital, Louisville, KY
 Dr. Nadine Fisher, University of Buffalo
 Dr. Laura Frey-Law, University of Iowa
 Dr. Kathleen Ganley, Northern Arizona University
 Dr. Andrew Mezsaros, University of Toledo
 Dr. Nicolas Schweighofer, University of Southern California
 Dr. Tara McIsaac, Columbia University
 Dr. Arlene Schmid, Indiana University
 Dr. Carol Dionne, University of Oklahoma
 Dr. Hans Dreyer, University of Texas Medical Branch
 Dr. Jason Wilken, Center for the Intrepid, San Antonio
 Dr. Jon Dingwell, University of Texas, Austin
 Dr. Li Li, Louisiana State University
 Dr. Cara Lewis, Boston University
 Dr. Karl Canseco, Medical College of Wisconsin
 Dr. James Moore, University of Miami
 Dr. Judy Foxworth, Winston Salem State University
 Dr. Laurie King, Oregon Health Sciences University
 Dr. Marcie Harris, Washington University, St. Louis
 Dr. Stephanie Carey, University of South Florida
 Dr. Heather Ross, University of Florida
 Dr. Joel Bialosky, University of Florida
 Dr. Mary Hastings, Washington University, St. Louis

Dr. Laura Prosser, National Institutes of Health, Bethesda, MD
 Dr. Simone Gill, Boston University
 Dr. Erin Foster, Washington University, St. Louis
 Dr. Laura Schmitt, The Ohio State University, Columbus
 Dr. Madeleine Hackney, Veterans Affairs Hospital, Atlanta
 Dr. Yi-Ting Tzen, University of Pittsburgh
 Dr. Matthew Peterson, James Haley VA Med Center, Tampa, FL
 Dr. Sandra Stevens, Middle Tennessee State University
 Dr. Wayne Feng, Medical University of South Carolina
 Dr. Shawn Roll, University of Southern California
 Dr. Rajiv Rangnathan, Rehabilitation Institute of Chicago
 Dr. Inae Gadotti, Florida International University
 Dr. Jason Kutch, University of Southern California
 Dr. Bradley Farrell, Shepherd Center, Atlanta, GA
 Dr. Elizabeth Vaughn, Emory University, Atlanta, GA
 Dr. Marcie Harris-Hayes, Washington University, Saint Louis, MO
 Dr. Jennifer Teske, Minneapolis VA, Minneapolis, MN
 Dr. Milap Sandhu, RIC and Northwestern, Chicago, IL
 Dr. Vicki Gray, University of Maryland, Baltimore, MD
 Dr. Joline Brandenburg, Mayo Clinic, Rochester, MN
 Dr. Lindsey Lepley, University of Connecticut
 Dr. Michael Tevald, Arcadia University, Philadelphia, PA
 Dr. Elizabeth Stegemoller, Iowa State University, Ames, IA
 Dr. Adam Buchwald, New York University, NY, NY
 Dr. Denise Peters, University of Vermont, Burlington, VT

| | |
|--------------|--|
| 2002- 2005 | Dr. Mary Murphy |
| 2010- 2014 | Dr. Heather Walker (UNC Physical Medicine and Rehabilitation) |
| 2012- 2015 | Dr. Anne Marion Taylor (Bioengineering K12; UNC-NCSU Biomedical Engineering) |
| 2016-present | Dr. Nora Fritz (Wayne State University Division of Physical Therapy) |

Sabbatical Supervision:

| | |
|------|--|
| 1992 | Dr. Greg Anson, University of Otago, New Zealand. Dr. Anson has expertise in the study of reaction time. He came to the U.S.A. to learn operant conditioning paradigm that Steve Wolf and I had developed for human application. We combined the study of reaction time and operant conditioning of spinal stretch reflexes. Supervision shared with Dr. T. Richard Nichols, Department of Physiology. |
|------|--|

Biology Honors Thesis Committees:

| | |
|------|---|
| 1994 | Menojkumar Raval, "The effects of tenotomy on programmed cell death of myofibers in the red-eared turtle, <i>pseudemys scripta elegans</i> " (Paul Lennard, primary supervisor) |
|------|---|

Biology Undergraduate Research (IBS 498):

| | |
|-----------|---|
| 1998-1999 | Lee Leddy |
| 1997 | Lisa Tang |
| 1995 | Darren Jacobs |
| | Asheesh Bastani |
| 1994 | (with Steven Wolf) Melissa Mann <i>NASA Minority Fellowships:</i> |
| 1997 | Melanie Diez <i>SURE program:</i> |
| 2001 | Mindy Albertini |
| 2005 | Melissa Makar <i>Miscellaneous:</i> |
| 2004 | Julia Hutcheson, Wake Forest University. Summer research volunteer |
| 2004-2005 | Megan, Emory University, Volunteer |

GRANTS

Pending:

Federal:

NIH/NICHD (20% effort, Kautz, PI) “National Center of Neuromodulation for Rehabilitation (NC NM4R)”

07/01/2020-06/30/2025 NOTICE OF AWARD RECEIVED

Role: Executive Committee, and Leader didactic and promoting excellence cores

NIH/NICHD (10% effort, Overall PI: Kautz) “Coordinating Center NCMRR P2C’s”

07/01/2020-06/30/2025 NOTICE OF AWARD RECEIVED

Role: PI of Coordinating Center

NIH . “Maximizing Opportunities for Scientific and Academic Independent Careers (MOSAIC) Part of NIH’s efforts to enhance diversity within the academic biomedical research workforce, and is designed to facilitate the transition of talented postdoctoral researchers from diverse backgrounds into independent faculty careers in research-intensive institutions” Part of role with SfN Professional Development Committee

Active Support:

Federally funded:

NIH/NICHD (10% effort, Segal, Signature Co-PI) “Intensive Rehabilitation Research Grant Writing Workshops in the United States (TIGRR)”

04/01/18 – 03/31/23

Annual Direct Costs \$150,000

NIH/NICHD (5% effort; Dewald, PI) “Engineering Career Development Center in Movement and Rehabilitation Sciences”

9/1/2017-8/31/2022

Role: Executive Committee and Recruiter

Annual Direct Costs \$5,031 for Subaward

NIH/NICHD (20% effort, Kautz, PI) “National Center of Neuromodulation for Rehabilitation (NC NM4R)”

09/01/2015-06/30/2020

Role: Executive Committee, and Leader dissemination and promotion component

Yearly: Direct Costs \$703,415

NIH/NICHD R25 (Boninger/Whyte, Co-PI’s) “Rehabilitation Medicine Scientist Training Program”

05/2019-04/2024

Role: Advisory Board and Mentorship Team

Association Funding

Education Leadership Partnership: ACAPT, APTA, APTE (Segal, Program Director) “Grantsmanship and Mentorship in Education Research”

GAMER Workshop, July 1, 2019- June 30, 2020

Yearly: Direct Cost ~\$51,000

Previous Support:

Foundation for Physical Therapy (Seamon, PI) “Using Neuromuscular Coordination during Post-Stroke Walking to Identify Mechanisms of Impairment for Targeted Rehabilitation Interventions” PROMOTION OF DOCTORAL STUDIES (PODS) SCHOLARSHIP I

Role: Mentorship Team

Education Leadership Partnership: ACAPT, APTA, APTE (Segal, Program Director) “Grantsmanship and Mentorship in Education Research”

GAMER Workshop, July 1, 2018- June 30, 2019

Yearly: Direct Cost \$44, 277.65

NC NM4R ADMINISTRATIVE SUPPLEMENT FOR WORKSHOP IN ADVANCED TMS

Supplement to Grant # P2C HD086844-04 (Kautz, PI)

Role: Admissions Committee Chair and Leadership Team

Yearly: \$70,000

NIH/NICHD (10% effort, Segal, PI) “Intensive Rehabilitation Research Grant Writing Workshops in the United States”

01/07/2013-12/31/2017 (no extension to 3/31/2018)

Year 1 Direct Costs: \$112,248; Total Direct Costs: \$577,240

NIH/NICHD Assistant Director (10% effort). “Spinal Circuits and the Musculoskeletal System”. Arthur English, PI, Program Project.
Dates: 04/01/2012-3/31/2018 (1 year no cost extension)
Total Award: \$769,223, direct costs year 1.

NIH/NICHD (5% effort; Dewald, PI) “Engineering Career Development Center in Movement and Rehabilitation Sciences”
9/1/2012-8/31/2017
Role: Executive Committee and Recruiter

Title: A Phase III, multicentre, multicentre, open label, extension study assessing the efficacy and safety of Dysport intramuscular injections used for the treatment of upper-limb spasticity in adult subjects with spastic hemiparesis due to stroke or traumatic brain injury
Role: Sub-investigator (Walker, Site PI)
Percent effort: 10%
Company: IPSEN
Dates: February 2012-Janurary 2015

Title: A Phase III prospective, multicentre, open label, extension study to assess the long term safety and efficacy of repeated treatment of lower limb spasticity in adult subjects with spastic hemiparesis due to stroke or traumatic brain injury.
Role: Sub-investigator (Walker, Site PI)
Percent effort: 10%
Company: IPSEN
Dates: 6/2011-6/2014

Title: A Phase III prospective, multicentre, double blind, prospective, randomized study to assess the long term safety and efficacy of repeated treatment of lower limb spasticity in adult subjects with spastic hemiparesis due to stroke or traumatic brain injury.
Role: Sub-investigator (Walker, Site PI)
Percent effort: 10%
Company: IPSEN
Dates: 10/2011-10/2014

Title: A Phase III, multicentre, double-blind, prospective, randomized, placebo-controlled study, assessing the efficacy and safety of Dysport intramuscular injections used for the treatment of upper-limb spasticity in adult subjects with spastic hemiparesis due to stroke or traumatic brain injury
Role: Sub-investigator (Walker, Site PI)
Percent effort: 10%
Company: IPSEN
Dates: 11/2011-11/2014

Title: Research Training in the Neurosciences
Role: Training Faculty (Snider, PI)
Funding Agency: NINDS
Grant Number: 5T32NS007431-13
Project Period: 09/30/1997 – 06/30/2014

Title: Operant conditioning of Tibialis Anterior H-reflexes in Human Subjects
Role: PI
Percent effort: 5-10%
Agency: NCTraCS
Dates: 01/01/2011-12/31/2011
Total direct costs: \$10,000

Title: Magnetic Resonance Analysis of Intrinsic Foot Musculature during Running
Role: Collaborator (Williams, PI)
Percent effort: 2%
Agency: NCTraCS
Dates: 01/01/2011-12/31/2011
Total direct costs: \$2,000

Subcontract (10% effort). “Spinal Circuits and the Musculoskeletal System”. Arthur English, PI, Program Project. NCMRR, NICHD
Role: Head of Clinician Scientist Advisory Board
Dates: 04/01/2012-3/31/2017
Total Award: \$900,000, direct costs year 1.

Title: Using reflex conditioning to restore spinal cord function.
Role: Co-PI (Chen PI)
Percent effort: 15%
Agency: New York State Spinal Cord Injury Research Program
Dates: 01/01/2006-12/31/2009
Total direct costs: \$1,202,235

Title: Interdisciplinary Fundamental Studies of Mechanisms Underlying Human Movement
Role: PI
Percent effort: 15%
Agency: North Carolina Biotechnology Center
Dates: 02/01/2007-01/31/2008
Total direct costs: \$250,000

Mentor, "Adaptation of leg muscle activity in humans". Sara Giordano, PI, Ruth L. Kirschstein National Research Service Award, NIH, 2004-2007. Total Award: \$76,208.

Member of training faculty, Emory University Neuroscience Training Grant, NIGMS, Dr. Ronald Calabrese, Director, 1996-2008.

Competitive Renewal: Co-Principal investigator with Dr. Arthur English (Overall P.I.), Dr. Robert Gregor (Georgia Tech), and Dr. T. Richard Nichols, Program Project Grant, National Center for Medical Rehabilitation Research, NICHD, NIH, "Spinal Circuits and Musculoskeletal System" Program Project, \$3,000,000 (approximate total direct costs for 60 months), 2/1/01-1/31/06.

- a. Project II (**Segal, PI, 30%**) Spatial Organization and Plasticity of Lower Limb Muscle Activity: ~\$655,000 direct costs
- b. Computer and Data Analysis Core (**Segal, PI, 5%**): ~\$380,000 direct costs
- c. Administrative Core (**Segal, Assistant Director, 5%**): ~\$375,000 direct Costs

"Medical Rehabilitation Research Training Program (MRSTP)", National Center for Medical Rehabilitation Research, NICHD, NIH. (PI: John Whyte, M.D., Ph.D.; Segal, Mentor), 2000-2004.

Assistant Project Director, "Training Rehabilitation Scientists: A Multidisciplinary Approach." Dr. P.A. Catlin (PI) and Dr. Steven L. Wolf (Co-PI), Training Grant, National Center for Medical Rehabilitation Research, NICHD, NIH, 1997-2002.

Co-Principal investigator with Dr. Timothy Cope, Dr. Arthur English (Overall P.I.) and Dr. T. Richard Nichols, Program Project Grant, National Center for Medical Rehabilitation Research, NICHD, NIH, "Spinal Circuits and Musculoskeletal System" 04/20/95-01/31/01 \$2,400,000 (approximate total direct costs for 58 months).

Project IV (Segal, PI) Intra and intermuscular synergies in humans
Computer Core (Segal, PI)

Co-Principal investigator with Dr. Steven L. Wolf, Veterans Administration Merit Review, "Improving ankle stretch reflexes for postural control in older, non-fallers", October, 1994- April, 1996. \$132,800 (total direct costs).

Co-investigator with Dr. Steven L. Wolf, Principal Investigator, NIH, "Down-training human spinal stretch reflexes", 1991-95. \$532,006 (direct costs for three years and one year no cost extension).

Co-Principal investigator with Dr. Steven L. Wolf, Veterans Administration Merit Review, "Changes in triceps surae stretch reflex and postural control", April, 1993-October, 1994. \$134,300 (total direct costs).

Wet Laboratory Renovation, Deans Office, Emory University School of Medicine, 1992-1993, \$24,222.

Principal Investigator, American Paralysis Association, "Operant conditioning of spinal stretch reflexes in chronic spinal cord injured patients", 1990-92. \$59,887, first year; \$60,000, second year.

Principal Investigator, Emory University Research Committee, "Anterior ectosylvian corticotectal projections in cats", 1988-89. \$9,445

Principal Investigator, Foundation for Physical Therapy, "Reassessment of the basis for neuromuscular reeducation techniques among neurological patients: Applications to a closed head injured population", 1986. \$9,163

Principal Investigator, Foundation for Physical Therapy, "Reassessment of the basis for neuromuscular reeducation techniques among neurological patients: Applications to a closed head injured population", 1985. \$8,505

DEVELOPMENT

With Development Officer, Kyle Gray, raised approximately \$1,500,000 at UNC CH 2005-2013 that went mostly to scholarships

PROFESSIONAL SERVICE

To Discipline

National and International:

Chair, Postdoctoral Fellowship for DPT's Taskforce, ACAPT, 2019-present

Professional Development Committee including Diversity and Inclusion subcommittee, Society for Neuroscience, Appointed May 2019

Criteria for Excellence Retreat, ACAPT, May 17-18, 2019

SACS site visitor, Texas Southwestern University, Dallas, TX, March 2019

Letter of Support for Dr. Karen McCulloch (Successful), Catherine Worthingham Fellows of the American Physical Therapy Association, 2018-19

Letter of Support for Dr. Nancy Reese (Successful), Catherine Worthingham Fellows of the American Physical Therapy Association, 2018-19

Letter of Support for Dr. Bruce Greenfield (Successful), Catherine Worthingham Fellows of the American Physical Therapy Association, 2018-19

Letter of Support for Dr. Beth Fisher (Successful), Maley Lecture of the American Physical Therapy Association, 2018-19

Board of Directors, American Council of Academic Physical Therapy (ACAPT) 2013-October, 2018

External review of Physical Therapy Department, Texas State University, 2016

ASA mentoring award nomination (Kutner), 2016

Nomination letter for Excellence in Neurologic Research Award (Dewald), 2016

External review for hiring at Associate Professor (Sell), Duke University, 2015

External review for hiring at Assistant Professor (Liang), Department of Physical Therapy, UNLV, 2016

External review for promotion to Professor (Buford), Physical Therapy Division, The Ohio State University, 2016.

External review for promotion to Associate Professor with Tenure (Slavens) University of Wisconsin – Milwaukee, 2015

External review for promotion to Professor (Sheldon), University of New England, 2015

External review for hire at Professor (Hornby), PM&R Department, Indiana University, 2015

External review for hire at Professor (Field-Fote), School of Applied Physiology, Georgia Tech, 2015

Organizing Committee, Neural Control of Movement Satellite Meeting April 20, 2015, Charleston, SC

External review for hire at to Professor with Tenure (Givens), Physical Therapy Division, UNC, 2014.

Elected to Board of Directors, Academic Council of the American Physical Therapy Association, 2014-2016.

External review for promotion to Associate Professor (Acosta), Physical Therapy & Human Movement Sciences, Northwestern University, 2013

Participant, International Physical Therapy Workforce Summit, December 7-9, 2013, Alexandria, Va

External review for Promotion and Tenure (Reisman), Department of Physical Therapy, University of Delaware, 2013.

Member Study Panel for T32 grants for NICHD 2012

Elected to Board of Directors, Academic Council of the American Physical Therapy Association, 2012-2013.

External review for promotion to Professor (Deborah Larsen), School of Health and Rehabilitation Sciences, The Ohio State University College of Medicine, October 2012.

External review of Northeastern University DPT satellite program in North Carolina commissioned by UNC General Administration (October 1, 2012)

External review of non-MD Health Sciences Programs at New York Medical College and Touro Universities, August 27-28, 2012.

External review for promotion and tenure, Program in Physical Therapy, Washington University in St. Louis, 2011.

Elected to Nominating Committee, Academic Council of the American Physical Therapy Association, 2010-2012.

External review for promotion and tenure, Department of Physical Therapy, University of Florida, 2010.

External review for promotion and tenure, Division of Biokinesiology and Physical Therapy, University of Southern California, 2010.

External review of educational program, University of California San Francisco and San Francisco State University Graduate Program in Physical Therapy, 2010

External review for promotion and tenure, Department of Biomedical Engineering, The Cleveland Clinic, 2009.

External review for promotion and tenure, Physical Therapy Division, University of Haifa, Israel, 2009.

External review for promotion and tenure, Physical Therapy Division, University of Colorado, Denver, 2009.

Organizing Committee for the formation of American Council of Academic Physical Therapy (ACAPT). 2008-2010

External review for promotion and tenure, Physical Therapy Department, University of Illinois, Chicago, 2008.

Ad Hoc Committee to review US News and World Report Rankings for Academic Administrators Special Interest Group of Education Section of the American Physical Therapy Association 2007-2008

External review for promotion and tenure, Physical Therapy Department, University of Florida, 2007.

Faculty Advisory Panel, Federation of State Boards of Physical Therapy, 2006-present

External review of educational program, Division of Physical Therapy, College of Health, University of Utah in Physical Therapy, 2006

Faculty mentor for Enhancing Rehabilitation Research in the South (ERRIS) grant writing workshop, 2003-present.

External review of educational program, University of California San Francisco and San Francisco State University Graduate Program in Physical Therapy, 2001

External review for promotion and tenure, Physical Therapy Division, The Ohio State University, 1995.

Scientific advisory committee for World Confederation of Physical Therapy, 1995.

Administrative Positions: With Dr. Jerome Sutin, "Symposium on central nervous system regeneration and transplantation", Emory University, September, 1991. Invited two internationally respected researchers in spinal cord regeneration (Drs. Barbara Bregman and Jerry Silver) to stimulate discussion and research in this area at Emory.

Sessions as chair:

- 2015 Session Moderator, Neural Control of Movement Satellite Meeting: Personalization of Rehabilitation Based on an Individual's Underlying Pathophysiology, Charleston, SC, April 20, 2015
- 2009 Session Moderator, Multi-segmental Motor Systems, American Physical Therapy Association Section on Research Retreat: Mechanisms Underlying Disordered Movement: Impairments With Force Generation, August, 2009.
- 2006 Platform Presentations for Clinical Electrophysiology and Wound Management, at American Physical Therapy Association Annual Conference, Orlando, FL, June 24, 2006
- 2005 Knee Disorders: Biomechanical and Electromyographical Analysis of Lower Limb, at American Physical Therapy Association Annual Conference, Boston, MA, June 9, 2005
- 1998 Emory Research Symposium: Motor Function and the Spinal Cord. Spinal Cord Circuits and Interneurons, Atlanta, GA
- 1994 International Society for Electrophysiological Kinesiology, Charleston, SC

Society Memberships:

American College of Sports Medicine (2006-2009)
 American Physical Therapy Association (1974 - present); Member of Research, Neurology and Education Sections
 American Physiological Society (2000 - 2006)
 International Brain Research Organization (1983 - present)
 Society for Neuroscience (1983 - present)
 American Association of University Professors (1995-2001)
 Neural Control of Movement (1996-1999, 2016)
 American Association of Anatomists (1989-1999)
 Georgia Association for Biomedical Research (1989-1999)
 New York Academy of Sciences (1987-1994)
 Association for the Advancement of Science (1982-88;2017- present)

Regional and State:

Professional:

Large Advisory Panel for the joint Emory University/Georgia Tech Department of Biomedical Engineering (1997)
 Councilor, Atlanta Chapter, Society for Neuroscience, (1992 - 1994)
 Chairman, Research Committee of the Physical Therapy Association of Georgia (1985- 1990)
 Committee to Establish a Musculoskeletal Research Program within Emory University and in collaboration with Georgia Tech (1989)

Georgia Colloquium on Human Movement (with individuals from Emory University, Georgia Tech, Georgia State and Hughston Clinic (1987)

Committee to Establish a Collaborative Musculoskeletal Research Program between Emory University, Georgia Tech and the Hughston Clinic (1987)

Member and mediator, Chapter Disciplinary Committee, Physical Therapy Association of Georgia (1985)

Community:

Reentry into Synagogue During COVID Crisis Taskforce, Emanuel Synagogue 2020

United States Golf Association, Marshal 2019 US Women's Open, Charleston.

Seabrook Island Turtle Patrol (2013-present)

Torah reader

Congregation Shearith Israel (Atlanta; 1992-2005)

Congregation Beth El (Durham; 2005-2013)

Emanuel Synagogue (Charleston; 2013- present)

Habitat for Humanity of Durham Volunteer (2008-2012)

Kiddush Cup Fundraiser, Chapel Hill-Durham Jewish Federation (2005-2013)

Social Action Committee, Beth El Synagogue, Durham, NC (2005-2013)

Student Health Action Coalition (SHAC) pro bono clinic preceptor (2005-2013)

Congregation Shearith Israel, Nominating Committee (2002- 2005)

Teens in Israel Programs, Planning and publicity (1998-1999)

Tichon Atlanta (Atlanta Supplemental High School), Executive Board (1997- 1998)

Tichon Atlanta (Atlanta Supplemental High School), Board of Trustees (1996- 1998)

Congregation Shearith Israel , Shelter for Homeless Women, Volunteer (1995- 2005)

Youth and Education Committee, Congregation Shearith Israel (Involved in policy setting for student educational experiences; 1988-1990)

Finance Committee, Cliff Valley School (1990-1992)

Ex Officio Board Member, Cliff Valley School (1991-1992)

Co-Chairperson, Board of Trustees, Cliff Valley School (1990-91)

Board of Trustees, Cliff Valley School (1989-90)

Chairman, Amateur Golf Tournament, National Head Injury Foundation, Georgia Association (1990, 1991)

Playground and Maintenance Committee, Cliff Valley School (1988-1991)

Co-chairman, Amateur Golf Tournament, National Head Injury Foundation, Georgia Association (major fundraiser, 1989)

Gifts subcommittee, Amateur Golf Tournament, National Head Injury Foundation, Georgia Association (1988-1992)

Alternate, Board of Trustees, Cliff Valley School (1988-89)

Institutional:

University:

Medical University of South Carolina

MUSC Leadership Development Core Committee (2015-2018)
Diversity and Inclusion Committee, College of Health Professions (2014-present)
Faculty Evaluation Committee, College of Health Professions (2014-2018)
MUSC Strategic Planning Goal Team One (2015)
University Tenure Committee (2014-2017)
Clinical Rotation Workgroup (2014-2015)
Associate Dean for Academic and Faculty Affairs Search Committee (2013-2014)
Senior Researcher/Mentor Search Committee, Department of Health Sciences and Research (2013-2014; Chair)

UNC at Chapel Hill

Nominating Committee for Lampe Distinguished Professorship in Department of Biomedical Engineering (NCSU)
Chair, Biomedical Engineering Director of Rehabilitation Engineering Search Committee (2009-2013)
Biomedical Engineering Faculty Search Committee (2007-2013)
Ad Hoc Group to promote Rehabilitation Engineering at UNC and NC State (2007-2013t)
Institutional K12 Multidisciplinary Advisory Committee (2006-2008)
Neurology Chair Search Committee (2005-2006)
Appointments and Promotion Committee, Department of Allied Health Sciences (2005- 2013)

Emory University

Integrative Biology Initiatives Subcommittee for SOM Research Priorities (2003)
Member, Nominations Committee, Program in Neuroscience (2002- 2005)
Ad Hoc member of Neurological and Behavioral Science Work Group for Medical School Research Retreat (2000)
Chair, Curriculum Committee, Program in Neuroscience (1996- 1999)
Member, Executive Committee, Program in Neuroscience (1994- 2000)
Member, Admissions Committee, Program in Neuroscience (1992- 1995; 1997- 2002)
Marshal, Emory University Commencement (1991, 1996-2002)
Chair, Allied Health Honors Committee (1990 - 2005)

Department of Rehabilitation Medicine

Strategic Planning Committee (1997-2005; co-chair 2001; chair 2002-2005)
Web Site Development Committee (2000 – 2005)
Departmental Integration Committee (2000- 2005)
Psychology Division Director Search Committee (1999-2001)

Departmental Integration Task Force (Chair; 1999)
Promotions, Tenure and Appointments Committee (1995- 2005)
Risk Management Committee (1993- 1995)
Executive Committee (1993-1998)
Establishment of Human Movement Laboratory in collaboration with Dr.
Steven Wolf and Dr.T. Richard Nichols (1988)
Education Committee (1986 – 2005)
Long Range Planning Committee (1988 - 1997)
Authorship Committee (1986- 2005)
Division of Physical Therapy
Outreach Committee (2000-2004)
Public Relations Committee (1996 – 2000)
Space Allocation and Utilization Committee (1989 - 2004)
Research Committee (Chair; 1989 - present)
Liaison with Department of Cell Biology (formerly Anatomy and Cell
Biology; 1983-2005)
Faculty Search Committee (1990 – present; chair since 2001)
Establishment and coordination of Jeffrey Scott Memorial Emergency Loan
Fund for Physical Therapy students (1984 - 2005)
Faculty Search Committee (1990 – present; chair since 2001)
Doctoral Degree Program Planning Committee (1987 - 2005)
Alumni Association Committee (1989 - 2005)
Admissions Committee (1984)

Editorial Boards:

Cells, Tissues and Organs (1999-2018)
Special Issue Editor (2011)
Journal of Pediatric Rehabilitation Medicine (2007-present)
Special Issue Editor (2011)

Reviewer:

Journal:

Clinical Neurophysiology (2004)
Canadian Journal of Pharmacology and Physiology (2004)
British Journal of Sports Medicine (2003-present)
Journal of Neural Engineering (2014-present)
Journal of Neuroscience (2003-present)
DentoFacialMaxillo Radiology (2002)
Neuroscience Letters (1998- present)
Topics in Neurology: In Touch Home Study Course (1998)
Journal of Gerontology: Medical Sciences (1997- present)
Cells, Tissues and Organs (formerly Acta Anatomica;1991 –
present)
Journal of Neurophysiology (1991 - present)
Physical Therapy (1989 - present)
Special Issue Reviewer (1995)

Journal of Pediatric Rehabilitation Medicine (2007-present)

Neurorehabilitation & Neural Repair (2015- present)

Books:

Springer (1995)

F.A. Davis Company (1990 - present)

W.B. Saunders Company (1989 - present)

Grants:

Review of Centers of Biomedical Research Excellence (COBRE)

(P20) Programs, NIGMS, NIH, July 2018

SCTR Review Panel, 2016-present

NM4R pilot grants, 2016- present

NICHHD, T32 review Panel, 2012

TraCS pilot grants 2006-2012

Ad Hoc reviewer National Institute on Dental Research (2000)

Wellcome Trust (1995)

Physical Therapy Association of Georgia (1985-1990)

Professional Licenses

Licensed Physical Therapist

South Carolina (since 2013) #7194

North Carolina (2005-2016)

Georgia (1984-2013)

Maryland (1976-1984)