CHRISTOPHER K. THOMPSON

CURRICULUM VITAE

1 September 2018

CURRENT POSITION

Assistant Professor, Department of Physical Therapy, College of Public Health
Director, Spinal Neuromotor Laboratory
Temple University, Philadelphia, PA
Research Scientist, Shriners Hospital for Children
Shriners Hospital for Children, Philadelphia, PA

CONTACT

Temple University
Department of Physical Therapy
1800 N. Broad Street, Philadelphia, PA 19121

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EDUCATION

Northwestern University, IL	Postdoc	Neurophysiology	May 2016
University of Illinois at Chicago, IL	Ph.D.	Movement Sciences	Aug 2012
University of Illinois at Chicago, IL	DPT	Physical Therapy	June 2009
Miami University, OH	B.A.	Psychology	June 2004

Dissertation Title: Wind-Up of Spinal Neurons Contributes to Supramaximal Volitional Torque in Human Spinal Cord Injury
Mentors: T. George Hornby, PT, PhD and Daniel Corcos, PhD 07/02/12

PROFESSIONAL LICENSE

Physical Therapist, State of Illinois, IDPR, Division of Professional Regulation,
License No. 070.017190

CLINICAL EXPERIENCE

Rehabilitation Institute of Chicago, Chicago, IL Jun. 2009 – July 2013
Physical Therapist
Rehab setting; work on a registry basis primarily on the CVA, TBA and SCI floors

John H. Stroger Jr. Hospital of Cook County, Chicago, IL Jan. – Mar. 2009
Physical Therapy Intern
Acute care setting; trained primarily in trauma, neurological and surgical intensive care units

NorthShore Rehabilitation, Evanston, IL Sept. – Nov. 2008
Physical Therapy Intern
Outpatient setting; treated individuals with a wide variety of orthopedic and neurological conditions

ALL Therapy Services, Chicago, IL Apr. – Aug. 2008
Physical Therapy Intern
Early Intervention; treated children (age 0-3) with neurological, genetic, and developmental conditions

Swedish Covenant Hospital, Chicago, IL July 2007
Physical Therapy Intern
Inpatient acute rehab; trained in the neurological rehabilitation ward

Athletico Physical Therapy, Chicago, IL May 2005 – April 2008
Physical Therapy Aide
Outpatient setting; assisted in treatment of individuals with orthopedic injuries

RESEARCH EXPERIENCE

Northwestern University, IL

Department of Physiology Aug. 2012 – Mar. 2016

Dr. Charles (CJ) Heckman. Spinal mechanisms of force generation in the decerebrate cat

Rehabilitation Institute of Chicago, Chicago, IL

Sensory Motor Performance Program May 2006 – July 2013

Dr. T. George Hornby. Mechanisms of weakness and 'fatigue' in human SCI

University of Nebraska, Omaha, NE

Department of Health Physical Education and Recreation July 2010 – July 2011

Dr. Nicholas Stergiou. Variability of community mobility in individuals with SCI

University of Illinois at Chicago, Chicago, IL

Department of Physical Therapy Jan. – June 2008

Dr. Clive Pai. Analysis of human gait in perturbed environments

Northern Illinois University, DeKalb, IL

Department of Cellular Biology Aug. 2004 – June 2005

Dr. David Lotshaw. Ion channel mechanics of renal systems in the rat

Miami University, Oxford, OH

Department of Psychology Jan. 2002 – June 2004

Dr. Stephan Berry. *In vivo* field potential contributions to memory in the rabbit

Dr. Leonard Mark. Perceptual influences on state transitions during human reaching

TEACHING EXPERIENCE

Temple University, Philadelphia, PA

Neuromotor Science Program – NMS 9622: Instrumentation 2016 –

Lectured ~7 MS and PhD students on the topic of computer building for data acquisition.

Neuromotor Science Program – NMS 9624: Mechanics and Models 2017

Taught 5 PhD students on the topics of electromyography and modeling of the neuromuscular system

Neuromotor Science Program – NMS 9623: Programming 2017

Lectured 5-7 MS and PhD students on LabVIEW programming and data visualization

Department of Physical Therapy - PHTH 8151: Evidence Based Practice III 2017 –

Assisted a groups of 8-15 DPT students though a project based research project

Department of Physical Therapy - PHTH 8554: Clinical Management Neuromuscular Disorders II 2017 –

Assisted in laboratory for 50-60 DPT students for the clinical management of neuromuscular disorders

Department of Physical Therapy - PHTH 8114: Neuroscience 2018 –

Taught neuroanatomy and neurophysiology to 60 DPT students

Department of Physical Therapy - PHTH 8116: Motor Control and Motor Learning 2018 –

Taught principles of motor learning to 60 DPT students

Department of Physical Therapy - PHTH 8117: Motor Control and Motor Learning Laboratory 2018 –

Assisted in laboratory for 60 DPT students covering control and learning of the motor system

Northwestern University, Chicago, IL

Department of Physical Therapy & Human Movement Sciences – Synthesis project 2013-2016

Lead two groups of DPT students (5 students each) in research projects using advanced motor unit decomposition approaches to assess pathological motor output following neurological injury.

Northwestern University, Evanston, IL

School of Engineering – Engineering Design and Communication 2009-2011

Lead two groups of freshman engineering students (5 & 7 students) to develop a position feedback controller for a split belt treadmill and robotic tendon tapper for human reflex testing

University of Illinois at Chicago, Chicago, IL

Department of Physical Therapy – PT 605: Plasticity of Tissue and Organ Systems 2008 – 2011

Lectured Physical Therapy students (30-60 students) on topics focusing on cortical and segmental mechanisms of force generation

FUNDING

National Institutes of Health (NINDS) | R01 NS104436 — Quinlan (PI)
Impairment of spinal development in cerebral palsy — 9/1/17 – 6/30/22 — $1,800,000

This project explores the potential to treat cerebral palsy (CP) through modulation of neural networks in the spinal cord. These networks are disrupted in their development by the injuries causing CP, and finding aberrations in the behavior of spinal neurons may allow more direct access to remedy the mechanisms causing motor problems. Parallel, longitudinal studies will quantify timing and development of abnormalities in spinal circuits in children with CP and in a rabbit model where we can more directly investigate altered properties spinal neurons and neuronal circuits. Role: Consultant

National Institutes of Health (NINDS) | R01 NS098509 — Heckman (PI)
The human motor output map — 6/30/16 – 6/30/21 — $2,723,982

Because of their direct connections to muscle fibers, motoneurons are the only cells in the CNS whose firing patterns can be routinely measured in humans. These patterns contain enormous information about the organization of motor commands. Our goal is to use newly developed surface array electrodes to measure these patterns in many muscles and thus create the first overall map of human motor output. This map will identify the differences in motor commands across the body and enhance understanding of disease states. Role: Co-I

Shriners Hospitals for Children | Developmental Grant 542795 — Thompson (PI)
The use of high density surface electromyography in birth brachial plexus palsy — 1/1/18 – 12/31/19 — $120,000

This project will utilize high-density surface electromyography and feature detection algorithms in infants in infants with birth brachial plexus palsy in an attempt to quantify lesion location, prior to and following microsurgical reconstruction of the plexus. Role: PI

Craig H. Neilsen Foundation | 260215 — Thompson (PI)
Motor contributions of spinal interneurons following spinal cord injury — 7/1/13 – 6/30/15 — $150,000

This project will quantify the relationship between the discharge patterns of motor units and spinal interneurons. This approach, in combination with specific 5HT pharmacology, will allow us to investigate the reorganization of spinal interneurons following acute and chronic SCI. This knowledge will provide multiple therapeutic targets for restoring appropriate neuronal processing and has been designed to enable parallel human investigations.

American College of Sports Medicine Foundation | FRG 21 — Thompson (PI)
Towards application of maximal exercise in human SCI — 7/1/11 – 6/30/12 — $4,620

Individuals with incomplete SCI increase their maximal volitional torque generation during a fatiguing protocol. This project will 1) describe the volitional behaviors which elicit and 2) the motor unit activity which underlies this supramaximal torque generation in preparation for a clinical training protocol.

HONORS AND AWARDS

Merit Award, College of Public Health, Temple University 2017
Extramural Loan Repayment Program and Renewal, National Institutes of Health, NINDS 2014-2017
T32 Postdoctoral Fellowship (HD07418), National Institutes of Health, NICHD 2015-2016
Postdoc Professional Development Travel Award, Northwestern University 2013, 2015
Travelling Fellow Award, Section on Research, American Physical Therapy Association 2014
PODS II Scholarship, Pittsburgh–Marquette Challenge Award, Foundation for Physical Therapy (declined) 2012
Post-Professional Research Award, Neurology Section, American Physical Therapy Association 2012
Sarah Baskin Award, Rehabilitation Institute of Chicago 2011, 2012
Lillian B. Torrance Scholarship, University of Illinois at Chicago 2008, 2009, 2010
Donna K. Roach Award, University of Illinois at Chicago 2009, 2010
Marilyn Gossman Symposium, Section on Research, American Physical Therapy Association 2010
Florence Kendall Scholarship, Foundation for Physical Therapy 2009
Finalist, Image of Research, University of Illinois at Chicago 2008
Sigma Xi Nomination, University of Illinois at Chicago Chapter 2007
Second Place, Graduate Research Forum, University of Illinois at Chicago 2007
Graduate Research Assistantship, University of Illinois at Chicago 2006 – 2012

SERVICE

Temple University, Philadelphia, PA

Member, Dissertation Committee, Francesca Marchionne, Department of Bioengineering Oct. 2016
Member, Search Committee for Chair, Department of Physical Therapy Oct. 2016
Member, Professional Development Committee, Department of Physical Therapy Aug. 2016

International Society of Electrophysiology and Kinesiology

Scientific Advisory Board Member, XXI ISEK Congress Apr. 2015 – July 2016
Session co-chair 'Novel measurement techniques', XXI ISEK Congress July 2016

Northwestern University, Chicago, IL

Postdoctoral Representative, NUIN Student Advisory Committee Jan. 2014 – Mar. 2016
Member, NUIN Postdoctoral Affairs Committee Jan. 2014 – Mar. 2016

Illinois Physical Therapy Association, IL

Assembly Representative, Eastern District Jan. 2012 – Mar. 2016

Rehabilitation Institute of Chicago, Chicago, IL

Advisory Board Member, BRAIN database June 2009 – Dec. 2014
Research Representative, Physical Therapy Practice Council Nov. 2009 – Dec. 2014
Chair, Physical Therapy Practice Council June 2011 – Jan. 2013
Vice-Chair, Physical Therapy Practice Council Nov. 2010 – June 2011

University of Illinois at Chicago, Chicago, IL

Class President, Department of Physical Therapy Class of 2009
Alumni Judge, UIC Student Research Forum Apr. 2008
Student Tutor: Human Physiology, Neuroanatomy, Biomechanics, Functional Histology Sept. 2007 – Dec. 2008

Ad hoc Reviewer

J Physiol, J Neurophysiol, J Appl Physiol, J Neuro Eng, Sci Rep, Eur J Neurosci, Pediatr Phys Ther, Front Physiol, J Mot Behav, J Electromyogr Kinesiol, PeerJ
Paralyzed Veterans of America

PROFESSIONAL AFFILIATIONS

American and Physical Therapy Association, Research and Neurology Section member
Society for Neuroscience
International Motoneuron Society
Alberta Motor Control Association
International Society of Electrophysiology and Kinesiology

MANUSCRIPTS

Thompson CK, Negro F, Johnson MD, Holmes MR, Miller JF, Powers RK, Farina D, and Heckman CJ. Robust and accurate decoding of motoneuron behavior and prediction of the resulting force output. J Physiol 2018 Jul;596(14):2643-2659. PMCID: 6046070

McPherson JG, McPherson LM, **Thompson CK**, Ellis MD, Heckman CJ, Dewald JP. Altered neuromodulatory drive may contribute to exaggerated tonic vibration reflexes in chronic hemiparetic stroke. Front Hum Neurosci. 2018 Apr 9;12:131. PMCID: 5900019

Johnson MD, **Thompson CK**, Tysseling VM Powers RK, Heckman CJ. The potential for understanding the synaptic organization of human motor commands via the firing patterns of motoneurons. *J Neurophysiol* 2017 Jul 1;118(1):520-531. PMCID: 5511870

Wilson JM, **Thompson CK**, Miller LC, and Heckman CJ. Intrinsic excitability of human motor units in biceps brachii versus triceps brachii. *J Neurophysiol* 2015 Jun 1;113(10):3692-9. PMCID: 4468975

Wei K, Glaser JI, Deng L, **Thompson CK**, Stevenson IH, Wang Q, Hornby TG, Heckman CJ, Kording KP. Serotonin affects movement gain control in the spinal cord. *J Neurosci*, 2014 Sep 17;34(38). PMCID: 4166156

Kim HE, **Thompson CK**, and Hornby TG. Muscle activation varies with contraction mode in human spinal cord injury. *Muscle Nerve*. 2014 May 13.

Jayaraman A, **Thompson CK**, Rymer WZ, and Hornby TG. Short-term maximal intensity resistance training increases volitional function and strength in chronic incomplete spinal cord injury: A pilot study on clinical outcomes. *J Neurol Phys Ther* 2013. 37(3):112-7.

Thompson CK, and Hornby TG. Divergent modulation of clinical measures of strength and spasticity in human incomplete spinal cord injury via serotonergic medication. *J Neurotrauma* 2013. 30(6): 498-502. PMCID: 3627428.

Thompson CK, Lewek, MD, Jayaraman A, and Hornby TG. Central excitability contributes to supramaximal volitional contractions in human incomplete spinal cord injury. *J Physiol*, 2011. (589 Pt 15): 3739-52. PMCID: 3171883

Frigon A, **Thompson CK**, Johnson MD, Hornby TG, and Heckman CJ. Sustained contractions evoked by electrically stimulating the muscle or its nerve are generated and modulated by a length-dependent intrinsic property of muscle in humans and cats. *J Neurosci*, 2011. (31): 5579-5588. PMCID: 4115248

Thompson CK, Jayaraman A, Kinnaird CR, and Hornby TG. Methods to quantify pharmacologically induced alterations in motor function in human incomplete SCI. *J Vis Exp*, 2011. (50). PMCID: 3169257

Hornby TG, Lewek MD, **Thompson CK**, and Heitz R. Repeated maximal volitional effort contractions in human spinal cord injury: initial torque increases and reduced fatigue. *Neurorehabil Neural Repair*, 2009. 23(9): p. 928-38.

CONFERENCE PROCEEDINGS

Heckman CJ, Dewald JP, **Thompson CK,** and Ellis MD. Motor impairments following changes in brainstem output following stroke and spinal injury. In Ibáñez J, Gonzalez-Vargas J, Azorín JM, Akai M, Pons Pons JL. *Converging Clinical and Engineering Research on Neurorehabilitation II*. 2016

Miller LC, Negro F, **Thompson CK,** Heckman CJ, Dewald JP Farina D. Properties of the Motor Unit Action Potential Shape in Proximal and Distal Muscles of the Upper Limb in Healthy and Post-Stroke Individuals. *Conf Proc IEEE Eng Med Biol Soc*. 2016

Miller LC, **Thompson CK,** Negro F, Heckman CJ, Farina D, Dewald JP. High-density surface EMG decomposition allows for recording of motor unit discharge from proximal and distal flexion synergy muscles simultaneously in individuals with stroke. *Conf Proc IEEE Eng Med Biol Soc*. 2014; 2014:5340-4. PMCID: PMC4410846. Student Paper Competition Finalist

PEER REVIEWED ORAL PRESENTATIONS

Thompson CK, Marchionne F, Krupka AJ, Negro F, Farina D, Lemay MA. Population interneuron and motor unit recordings or How I became convinced. *Meeting of the International Motoneuron Society*. Boulder, CO. 12 June 2018.

Stojkovska I, Johnson MD, Negro F, Chardon MK, Farina D, Heckman CJ, **Thompson CK**. Initial estimates of motoneuron after-hyperpolarization through the tonic discharge of motor unit populations. *XXI Congress of the International Society of Electrophysiology and Kinesiology*. Chicago, IL. 7 July 2016

Thompson CK, Johnson MD, Negro F, Farina D, Heckman CJ. Post synaptic potentials across motoneuron populations in the cat. *International Motoneuron Meeting*. Istanbul, Turkey. 21 June 2016

Thompson CK, Miller LC, Gallego JA, Farina D, and Heckman CJ. Control of the motoneuron: insights from the discharge of motor unit populations. *Society for the Neural Control of Movement Annual Meeting*. Montego Bay, Jamaica. (Two hour session); 27 April 2016

Thompson CK, Negro F, Johnson MD, Holmes MR, Miller LC, Farina D, and Heckman CJ. The neural drive to muscle from specific sensory pathways. *Society for Neuroscience Pre Meeting on Rhythmic Motor Circuits;* 16 October 2015

Thompson CK, Negro F, Johnson MD, Holmes MR, Farina D, and Heckman CJ. Correlations (and lack thereof) among motor unit populations in response to various sensory pathways. *XLVII Neurohike Meeting*. Jasper, Canada; 26 September 2015.

Thompson CK, Johnson MD, Negro F, Holmes MR, Farina D, and Heckman CJ. Application of concurrent motor unit recordings in the unparalyzed, unanaesthetised, decerebrate cat. *International MotoNeuron Meeting*. Halifax, Canada; 19 June 2014.

Thompson CK, Negro F, Johnson MD, Holmes MR, Farina D, and Heckman CJ. Coherence among motor unit spike trains in the decerebrate cat. *XLIV Neurohike Meeting*. Jasper, Canada; 29 September 2013.

Thompson CK and Hornby TG. Motor unit activity during maximal contractions in humans with incomplete spinal cord injury. *Mini Motoneuron Meeting 2013*. Chicago, IL; 7 June 2013.

Thompson CK, Mottram CJ, Kim H, Suresh NL, and Hornby TG. Supramaximal volitional torque in humans with spinal cord injury: Reflexive and perceptual consequences. *International Motoneuron Meeting*. Sydney Australia; 25 July 2012.

Thompson CK, Kim H, Mottram CJ, Jayaraman A, and Hornby TG. Supramaximal volitional torque in humans with spinal cord injury: Associated motor behaviors. *XIX Congress of the International Society of Electrophysiology and Kinesiology*. Brisbane, Australia; 19 July 2012.

Thompson CK, Koutakis P, Kim HE, Leech K, Jayaraman A, Stergiou N, and Hornby TG. Objective measures of community mobility in persons with SCI: Preliminary finding from the MAPS project. *American Physical Therapy Association Combined Sections Meeting,* New Orleans, LA; 12 February 2011.

Hornby TG, Hyngstrom A, Jayaraman A, and **Thompson CK**. From Bench to Bedside: Translation of basic scientific findings of spinal cord physiology to clinically relevant interventions for individuals with spinal cord injury. *Research and Neurology Sponsored Education Session, American Physical Therapy Association Combined Sections Meeting.* New Orleans LA; 11 February 2011. (Three hour education session)

Thompson CK, and Hornby TG. Modulation of supramaximal volitional torques and spastic reflexes following pharmacological manipulation of serotonin in human incomplete spinal cord injury. *American Physical Therapy Association Combined Sections Meeting.* New Orleans, LA; 19 February 2010.

INVITED PRESENTATIONS

Thompson CK, Negro F, Farina D, and Heckman CJ. Quantifying the motor command through the discharge of spinal neurons. *Motion Analysis Laboratory Lab Meeting*. Kennedy Krieger Institute. Baltimore MD; 23 May 2017

Thompson CK, Negro F, Johnson MD, Farina D, and Heckman CJ. Measurements of synaptic drive and intrinsic excitability through the discharge of motoneurons. *Drexel Spinal Cord Research Center Seminar Series*. Philadelphia PA. 2 December 2016.

Thompson CK, Negro F, Johnson MD, Farina D, and Heckman CJ. The discharge of spinal motoneurons across species and disease states. *Shriners Hospitals Pediatric Research Center (Center for Neural Repair and Rehabilitation) Seminar Series*. Philadelphia, PA. 29 November 2016.

Thompson CK, Negro F, Johnson MD, Farina D, and Heckman CJ. The motor system following spinal cord injury. *Department of Neuroscience, Cell Biology, and Physiology Seminar Series*. Wright State University, Dayton, OH; 7 October 2016.

Thompson CK, Negro F, Johnson MD, Farina D, and Heckman CJ. Motor unit analyses as a means for parallel animal and human investigations. *Temple Movement Science Club*. Philadelphia, PA; 22 April 2016.

Thompson CK, Negro F, Johnson MD, Farina D, and Heckman CJ. Accuracy of partial population motor unit recordings from the *in situ* cat. *Northwestern University's Movement & Rehabilitation Sciences Training Day*. Chicago, IL; 21 August 2015.

Thompson CK, Negro F, Johnson MD, Farina D, and Heckman CJ. Modulation of synaptic drive following acute spinal cord injury. *Department of Neurorehabilitation Engineering Lab Meeting*. Göttingen, Germany; 13 April 2015.

Thompson CK, and Hornby TG. Giving 110%: Generation of supramaximal torques in human spinal cord injury. *Sensory Motor Performance Program Seminar Series*, Rehabilitation Institute of Chicago. Chicago IL; 28 January 2011.

Thompson CK, and Hornby TG. 'Fatiguing' Volitional Contractions Increase Maximal Knee Extension Torques in Human SCI? Findings, Mechanisms and Future Directions. *Physical Therapy Departmental Seminar, University of Illinois at Chicago.* Chicago, IL; 16 April 2009.

POSTER PRESENTATIONS

Kumar P, Engel A, Vemula N, Kmiec TE, **Thompson CK**. Consistency of Paired Motor Unit Analyses to Quantify Human Spinal Motoneuron Excitability. *College of Public Health Research Day*. Philadelphia PA. 4/6/18

Hiremath SV and **Thompson CK**. STEM Education through Assistive Technology Development Workshop. *Annual Faculty Conference on Teaching Excellence*. Philadelphia, PA 1/10/18

Thompson CK, Marchionne F, Krupka AJ, Negro F, Farina D, Lemay MA. Concurrent recordings of motor unit and spinal interneuron discharge patterns during reflex activation. *Society for Neuroscience Annual Meeting.* Washington DC 11/13/17

McPherson LM, Wilson J, Rendos NK, Powers R, Heckman CJ, **Thompson CK**. The distribution of motoneuron excitability across upper extremity motor pools. *Society for Neuroscience Annual Meeting*. Washington DC 11/14/17

Kang HW, Joshi I, Hurley DM, Hruby S, Negro F, Farina D, Dewald JP, Heckman CJ, **Thompson CK**. Paired motor unit analyses within and across motor unit populations in the human lower leg *American Physical Therapy Association Combined Sections Meeting,* San Antonio, TX. 2/16/17

Johnson MD, **Thompson CK**, Heckman CJ. Potential role of spinal interneurons in genesis of muscle cramps in an animal model. *Society for Neuroscience Annual Meeting*. San Diego, CA. 11/17/16.

Thompson CK, Johnson MD, Chardon MK, Heckman CJ. Cutaneous post-synaptic potentials from the *in vivo* cat. *XXI Congress of the International Society of Electrophysiology and Kinesiology*. Chicago, IL. 7/6/16.

Hruby S, Kang HW, Joshi I, Hurley D, Negro F, Farina D, Dewald JP, Heckman CJ, **Thompson CK**. Motor unit synchronization during linear motor commands. *XXI Congress of the International Society of Electrophysiology and Kinesiology*. Chicago, IL. 7/6/16.

Thompson CK, Johnson MD, Negro F, Miller JF, Farina D, and Heckman CJ. Motor unit discharge of the soleus following acute dorsal hemisection in the cat. *American Spinal Cord Association 2016 Annual Scientific Meeting*. Philadelphia, PA. 4/14/16.

Joshi I, Kang HW, Hurley DM, Hruby S, **Thompson CK**, Dewald JP, Heckman CJ. Variations in paired motor unit analyses within and across motor pools in the human lower leg. *25th Annual Presentation Day for the Synthesis Projects*. Chicago, IL; 3/28/16

Miller LC, Negro F, Heinichen S, Schultz K, McLerran M, Rose K, Winters A, **Thompson CK**, Heckman CJ, Farina, D Dewald, JP. Coherence among motor units of flexion synergy muscles in individuals with chronic hemiparetic stroke. *American Physical Therapy Association Combined Sections Meeting,* Anaheim, CA; 2/19/16.

McLerran M, Rose K, Winters A, Heinichen S, Schultz K, **Thompson CK**, Miller LC, Heckman CJ, Dewald, JP. Estimation of Motor Unit Discharge Characteristics in Proximal and Distal Arm Muscles in Healthy Controls and Individuals Post-Stroke. *American Physical Therapy Association Combined Sections Meeting,* Anaheim, CA; 2/19/16.

Thompson CK, Negro F, Johnson MD, Holmes MR, Miller LC, Farina D, and Heckman CJ. Decorrelated neural drive to muscle from highly consistent inputs of specific sensory pathways in the *in vivo* cat. *Society for Neuroscience Annual Meeting*. Chicago, IL; 10/18/15.

Hurley D, Hruby S, Joshi I, Kang HW, **Thompson CK**, Miller LC, Sanchez N, Powers RK, Negro F, Farina D, Dewald JP, Heckman CJ. Mapping the discharge of motor unit populations in the human lower extremity. *Society for Neuroscience Annual Meeting*. Chicago, IL; 10/18/15.

Wilson JM, **Thompson CK**, Miller LC, MacKinnon CD, Heckman CJ. Paradoxical changes in intrinsic motoneuron excitability between flexors and extensors in Parkinson's disease. *Society for Neuroscience Annual Meeting*. Chicago, IL; 10/19/15.

Thompson CK, Johnson MD, Negro F, Holmes MR, Farina D, and Heckman CJ. Correlating muscle force to its electrical activity. *Third Annual Northwestern University Postdoctoral Forum Symposium*. Chicago, IL; 9/1/15.

Thompson CK, Negro F, Johnson MD, Holmes MR, Miller LC, Farina D, and Heckman CJ. Modulation of synaptic drive underlying "self-sustained" motor unit discharge from the *in vivo* cat. *Northwestern University's Movement & Rehabilitation Sciences Training Day*. Chicago, IL; 8/21/2015.

Wilson JM, **Thompson CK**, Heckman CJ. Motor unit firing properties of the triceps brachii in mild-moderate Parkinson's disease. *Society for the Neural Control of Movement Annual Meeting.* Charleston, SC. 4/23/15

Thompson CK, Johnson MD, Negro F, Holmes MR, Farina D, and Heckman CJ. Preferred discharge of identified soleus motor units in response to tendon vibration in the decerebrate cat. *Society for the Neural Control of Movement Annual Meeting.* Charleston, SC. 4/21/15

Thompson CK, Johnson MD, Negro F, Holmes MR, Miller JF, Farina D, and Heckman CJ. Motor unit discharge of the soleus following acute dorsal hemisection in the cat. *Neural Control of Movement Satellite Meeting.* Charleston, SC. 4/20/15

McLerran M, Rose K, Winters A, Heinichen S, Schultz K, **Thompson CK**, Miller LC, Heckman CJ, Dewald, JP. Estimation of motor unit discharge characteristics in proximal and distal upper extremity muscles in healthy controls and individuals post-stroke. *24th Annual Presentation Day for the Synthesis Projects.* Chicago, IL, 3/30/15

Heinichen S, Schultz K, McLerran M, Rose K, Winters A, Miller LC, **Thompson CK**, Heckman CJ, Dewald, JP. Coherence among motor units of flexion synergy muscles in individuals with chronic hemiparetic stroke. *24th Annual Presentation Day for the Synthesis Projects.* Chicago, IL, 3/30/15

Thompson CK, Negro F, Johnson MD, Holmes MR, Miller LC, Farina D, and Heckman CJ. Structures of synaptic drive underlying self-sustained motor unit discharge in the decerebrate cat. *Society for Neuroscience Chicago Chapter Annual Meeting.* 3/20/2015

Sodona T, **Thompson CK**, Heckman CJ. Onion skinning of motor units during stretch. *NUIN Poster Session*. Chicago, IL; 1/16/2015.

Thompson CK, Johnson MD, Negro F, Holmes MR, Farina D, and Heckman CJ. Estimating muscle force through its electrical activity: Population motor unit spike trains compared to global interference electromyography. *Northwestern University's Movement & Rehabilitation Sciences Training Day.* Chicago, IL; 8/22/2014.

Wilson J, **Thompson CK**, Heckman CJ. A revisitation of motor unit firing properties in Parkinson's disease. *International MotoNeuron Meeting.* Halifax, Canada; 6/16/2014.

Negro F, **Thompson CK**, Johnson MD, Holmes MR, Holobar A, Heckman CJ, Farina D. Analysis of individual motor units in the decerebrate cat from multi-channel EMG. *International MotoNeuron Meeting.* Halifax, Canada; 6/16/2014.

Kim H, **Thompson CK**, Hornby TG. Increased central activation during eccentric contractions is associated with decreased spinal inhibition during muscle lengthening in human spinal cord injury. *International MotoNeuron Meeting.* Halifax, Canada; 6/16/2014.

Kim HE, **Thompson CK**, and Hornby TG. Altered reflex contributions to increased muscle activation during eccentric contractions in individuals with incomplete spinal cord injury. *American Physical Therapy Association Combined Sections Meeting,* Las Vegas, NE; 2/6/2014.

Thompson CK, Kim HE, and Hornby TG. Increases in maximal motor unit discharge rates during volitional contractions in human incomplete spinal cord injury. *Society for Neuroscience Annual Meeting*, San Diego CA; 11/13/2013.

Johnson MD, **Thompson CK**, Holmes MR, Farina D, Negro F, and Heckman CJ. Memory in spinal motoneurons: short term memory of multiple events due to persistent inward currents. *Society for Neuroscience Annual Meeting*, San Diego CA; 11/12/2013.

Kim HE, **Thompson CK**, and Hornby TG. Maximal anisometric contractions in individuals with incomplete spinal cord injury. *Society for Neuroscience Annual Meeting*, San Diego CA; 11/13/2013.

Holmes MR, Johnson MD, Miller JF, **Thompson CK**, Rymer WZ, Heckman CJ. PIC dependant amplification of synaptic input to motor neurons in response to rapid stretch in the decerebrate cat. *Society for Neuroscience Annual Meeting*, San Diego CA; 11/12/2013.

Thompson CK, Johnson MD, Holmes MR, Farina D, Negro F, and Heckman CJ. Intrathecal activation of noradrenergic receptor subtypes induces coherence among motor unit spike trains in the hindlimb of the decerebrate cat. *Northwestern University's Movement & Rehabilitation Sciences Training Day.* Chicago, IL; 7/27/2013

Leech KA, **Thompson CK**, Kinnaird CR, and Hornby TG. Effects of serotonergic agents on locomotor performance in individuals with motor incomplete spinal cord injury. *American Physical Therapy Association Combined Sections Meeting,* San Diego CA; 1/22/2013.

Kim HE, **Thompson CK**, and Hornby TG. Supramaximal torque production during repeated dynamic contractions in individuals with incomplete spinal cord injury. *American Physical Therapy Association Combined Sections Meeting,* San Diego CA; 1/22/2013.

Thompson CK and Hornby TG. Modulation of motor behaviors following serotonergic medications in humans with incomplete spinal cord injury. *2012 Northwestern University Interdepartmental Neuroscience Retreat*, Saint Charles IL; 9/15/2013.

Klonowski MA, Pelo RM, Williams NM, Santiago RV, **Thompson CK**, Leech KA, Holleran C, Leddy A, and T.G. Hornby. Intensive Goal-Directed Treatments in Enriched Environments Augments Patient Outcomes. *2012 Illinois Physical Therapy Association Fall Conference*, Naperville IL; 10/12/2012.

Thompson CK, Jayaraman A, and Hornby TG. Targeting supramaximal strength in incomplete spinal cord injury: time and intensity dependent increase in volitional torque generation. *American Physical Therapy Association Combined Sections Meeting,* Chicago, IL; 2/11/2012.

Thompson CK, Jayaraman A, Kim HE, Suresh NL, Mottram CJ, and Hornby TG. Time and intensity dependent increase in motor unit activity contributes to the generation of supramaximal volitional torque in human spinal cord injury. *Society for Neuroscience Annual Meeting*, Washington, DC; 11/16/2011.

Thompson CK, Hornby TG. Increased motor unit activation with decreased central drive in human spinal cord injury: Towards reconciliation of laboratory and clinical findings. *Northwestern University's Movement & Rehabilitation Sciences Training Day.* Chicago, IL; 8/23/ 2011

Trumbower RD, Jayaraman A, **Thompson CK**, Mitchell GS, and Rymer WZ. One-day exposure of acute intermittent hypoxia on somatic motor function in human SCI. *Society for Neuroscience Annual Meeting.* San Diego, CA; 11/16/2010.

Frigon A, **Thompson CK**, Heckman CJ, and Hornby TG. Joint angle-dependent modulation of plateau-like behavior in human motoneurons. *Society for Neuroscience Annual Meeting.* San Diego, CA; 11/15/2010.

Thompson CK, Jayaraman A, and Hornby TG. Contributions of motoneuron excitability to volitional force-generation in human incomplete spinal cord injury. *Motoneuron Meeting.* Paris, France; 7/12/2010

Jayaraman A, **Thompson CK**, Rymer WZ, and Hornby TG. High-intensity intermittent vs. conventional resistance training: Impact on strength and function in individuals with incomplete spinal cord injury. *American Physical Therapy Association Combined Sections Meeting.* New Orleans, LA; 2/20/2010.

Thompson CK, Jayaraman A, and Hornby TG. Serotonergic modulation of peak volitional torques and motoneuron excitability in human incomplete spinal cord injury. *Society for Neuroscience Annual Meeting.* Chicago, IL; 10/18/2009.

Jayaraman A, **Thompson CK**, Rymer WZ, and Hornby TG. Neural mechanisms underlying augmented volitional torque following noxious stimulus in individuals with incomplete spinal cord injury. *Society for Neuroscience Annual Meeting.* Chicago, IL; 10/18/2009.

Thompson CK, Lewek MD, Jayaraman A, and Hornby TG. Central contributions to augmented motor output during fatiguing contractions in human incomplete spinal cord injury. *APTA Section on Research, Mechanisms Underlying Disordered Movement: Impairments with Force Generation.* Pacific Grove, CA; 8/12/2009.

Jayaraman A, **Thompson CK**, Rymer WZ, and Hornby TG. Neural mechanisms underlying augmented volitional torque following noxious stimulus in individuals with incomplete spinal cord injury. *Cellular and Network Functions in the Spinal Cord.* Madison, WI; 6/25/2009.

Jayaraman A, **Thompson CK**, and Hornby TG. Potential central and reflex contributions on augmented volitional torque in individuals with incomplete spinal cord injury. *American Physical Therapy Association Combined Sections Meeting.* Las Vegas, NE; 2/11/2009.

Thompson CK, Lewek MD, Jayaraman A, and Hornby TG. Increased Spinal Excitability Contributes to Volitional "Warm-up" during Repeated Maximal Volitional Efforts in Incomplete Spinal Cord Injury. *American Physical Therapy Association Combined Sections Meeting.* Las Vegas, NE; 2/11/2009.

Hornby TG, **Thompson CK**, and Lewek MD. Potential neuromuscular mechanisms underlying torque augmentation during "fatiguing" contractions in human incomplete spinal cord injury. *Society for Neuroscience Annual Meeting.* San Diego, CA; 11/4/2007.

Lewek MD, Hornby TG, and **Thompson CK**. Torque output during repeated maximal voluntary isometric contractions in subjects with incomplete spinal cord injury. *Society for Neuroscience Annual Meeting.* San Diego, CA; 11/4/2007.

Thompson CK, Lewek MD, and Hornby TG. Maximum voluntary isometric contractions in subjects with spinal cord injury: What fatigue?? *University of Illinois Graduate Research Forum.* Chicago, IL; 4/20/2007.

Choi HJ, **Thompson CK**, and Mark LS. Scaling affordances for human reach actions. *Steve Hinkel Memorial Student Forum.* Oxford, OH; 6/7/2004.