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**CURRICULUM VITAE
JONATHAN S. CARP**

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Education:

1976 **B.A.**, Chemistry, Haverford College, Haverford, PA
1982 **Ph.D.**, Pharmacology, George Washington University, Washington, DC
 Dissertation: Modification of spinal cord monosynaptic transmission and motor
 behavior by catecholaminergic drugs and phenytoin. Doctoral advisor: Rebecca
 J. Anderson, Ph.D.
1981-1984 **Postdoctoral Research Trainee**, Department of Pharmacology, University of
 Maryland, Baltimore, MD
1984-1987 **Postdoctoral Research Fellow**, Department of Physiology, Northwestern
 University, Chicago, IL
1988-1990 **Postdoctoral Research Affiliate**, Wadsworth Center, Albany, NY

Professional Experience:

1990-1993 **Research Scientist I**, Wadsworth Center, Albany, NY
1993-2003 **Research Scientist II**, Wadsworth Center, Albany, NY
2003-present **Research Scientist III**, Wadsworth Center, Albany, NY

Other Professional Appointments:

5/95-12/97 **Research Assistant Professor**, School of Public Health, SUNY at Albany
1/98-present **Adjunct Assistant Professor**, School of Public Health, SUNY at Albany

Honors and Awards:

1978-9 **Predocotrinal Fellowship**, Dreyfus Foundation
1986-7 **Individual Postdoctoral NRSA**, NIH

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SCHOLARLY ACTIVITY

Peer Reviewed Publications:

Carp JS, Anderson RJ. Sensorimotor deficits produced by phenytoin and chlorpromazine in unanesthetized cats. *Pharmacology, Biochemistry & Behavior* 10: 513-520 (1979).

Carp JS, Anderson RJ. The effects of phenytoin on motor function in awake cats. *Archives Internationales de Pharmacodynamie et de Therapie* 237: 139-149 (1979).

Carp JS, Anderson RJ. Modification of spinal cord transmission by an interaction of chlorpromazine and phenytoin. *Journal of Pharmacology & Experimental Therapeutics* 216: 270-274 (1981).

Carp JS, Anderson RJ. Dopamine receptor mediated depression of spinal monosynaptic transmission. *Brain Research* 242: 247-254 (1982).

Carp JS, Aronstam RS, Witkop B, Albuquerque EX. Electrophysiological and biochemical studies on enhancement of desensitization by phenothiazine neuroleptics. *Proceedings of the National Academy of Sciences* 80: 310-314 (1983).

Carp JS, Rymer WZ. Enhancement by serotonin of tonic vibration and stretch reflexes in the decerebrate cat. *Experimental Brain Research* 62: 111-122 (1986).

Carp JS, Ohno Y, Warnick JE. Prevention of phencyclidine-induced depression of the segmental reflex by L-3,4-dihydroxyphenylalanine in the rat spinal cord in vitro. *Journal of Pharmacology and Experimental Therapeutics* 248: 1048-1053 (1989).

Wolpaw JR, Carp JS, Lee CL. Memory traces in spinal cord produced by H-reflex conditioning: effects of post-tetanic potentiation. *Neuroscience Letters* 103: 113-119 (1989).

Wolpaw JR, Carp JS. Memory traces in the spinal cord. *Trends in Neurosciences* 13: 137-142 (1990).

Carp JS, Powers RK, Rymer WZ. Alterations in motoneuron properties induced by acute dorsal spinal hemisection in the decerebrate cat. *Experimental Brain Research* 83: 539-548 (1991).

Carp JS. Electrophysiologic properties of primate lumbar motoneurons. *Journal of Neurophysiology* 68: 1121-1132 (1992).

Chen XY, Carp JS, Wolpaw JR. Constancy of motor axon conduction time during growth in rats. *Experimental Brain Research* 90: 343-345 (1992).

Wolpaw JR, Herchenroder PA, Carp JS. Operant conditioning of triceps surae H-reflex: factors affecting the magnitude of change. *Experimental Brain Research* 97: 31-39 (1993).

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Carp JS. Monosynaptic EPSPs in primate lumbar motoneurons. *Journal of Neurophysiology* 70: 1585-1592 (1993).

Carp JS, Wolpaw JR. Motoneuron plasticity underlying operantly conditioned decrease in primate H-reflex. *Journal of Neurophysiology* 72: 431-442 (1994).

Carp JS, Wolpaw JR. Motoneuron properties after operantly conditioned increase in primate H-reflex. *Journal of Neurophysiology* 73: 1365-1373 (1995).

Halter JA, Carp JS, Wolpaw JR. Operantly conditioned motoneuron plasticity: possible role of sodium channels. *Journal of Neurophysiology* 73: 867-871 (1995).

Carp JS, Herchenroder PA, Chen XY, Wolpaw JR. Sag during unfused tetanic contractions in rat triceps surae motor units. *Journal of Neurophysiology* 81: 2647-2661 (1999).

Carp JS, Chen XY, Sheikh H, Wolpaw JR. Operant conditioning of rat H-reflex affects motoneuron axonal conduction velocity. *Experimental Brain Research* 136: 269-273 (2001).

Carp JS, Chen XY, Sheikh H, Wolpaw JR. Motor unit properties after operant conditioning of rat H-reflex. *Experimental Brain Research* 140: 382-386 (2001).

Carp JS, Chen XY, Sheikh H, Wolpaw JR. Effects of chronic nerve cuff and EMG electrodes on rat triceps surae motor units. *Neuroscience Letters* 312: 1-4 (2001).

Schalk G, Carp JS, Wolpaw JR. Temporal transformation of multiunit activity improves motor unit identification. *Journal of Neuroscience Methods* 114: 87-98 (2002).

Hori N, Carp JS, Carpenter, DO, Akaike N. Corticospinal transmission to motoneurons in cervical spinal cord slices from adult rats. *Life Sciences* 72: 389-96 (2002).

Chen XY, Carp JS, Chen L, Wolpaw JR. Corticospinal tract transection prevents operantly conditioned H-reflex increase in rats. *Experimental Brain Research* 144: 88-94 (2002).

Carp JS, Tennissen AM, Wolpaw JR. Conduction velocity is inversely related to action potential threshold in rat motoneuron axons. *Experimental Brain Research* 150: 497-505 (2003).

Carp JS, Tennissen AM, Chen XY, Schalk G, Wolpaw JR. Long-term spinal reflex studies in awake behaving mice. *Journal of Neuroscience Methods* 149: 134-143 (2005).

Carp JS, Tennissen AM, Chen XY, Wolpaw JR. Diurnal H-reflex variation in mice. *Experimental Brain Research* 168: 517-528 (2006).

Chen XY, Carp JS, Chen L, Wolpaw JR. Sensorimotor cortex ablation prevents H-reflex up-conditioning and causes a paradoxical response to down-conditioning in rats. *Journal of Neurophysiology* 96: 119-27 (2006).

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Wolpaw JR, Carp JS. Plasticity from muscle to brain. *Progress in Neurobiology* 78: 233-63 (2006).

Carp JS, Tennissen AM, Chen XY, Wolpaw JR. H-reflex operant conditioning in mice. *Journal of Neurophysiology* 96: 1718-27 (2006).

Carp JS, Tennissen AM, Chen XY, Wolpaw JR. H-reflex operant conditioning in mice. *Journal of Neurophysiology* 96: 1718-1727 (2006).

Carp JS, Tennissen AM, Chen XY, Wolpaw JR. Diurnal H-reflex variation in mice. *Experimental Brain Research* 168: 517-528 (2006).

Chen XY, Carp JS, Chen L, Wolpaw JR. Sensorimotor cortex ablation prevents H-reflex up-conditioning and causes a paradoxical response to down-conditioning in rats. *Journal of Neurophysiology* 96:119-127 (2006).

Chen XY, Pillai S, Chen Y, Wang Y, Chen L, Carp JS, Wolpaw JR. Spinal and supraspinal effects of long-term stimulation of sensorimotor cortex in rats. *Journal of Neurophysiology* 98: 878-887 (2007).

English A, Chen Y, Carp JS, Wolpaw JR, Chen XY. Recovery of electromyographic activity after transection and surgical repair of the rat sciatic nerve. *Journal of Neurophysiology* 97: 1127-1134 (2007).

Carp JS, Tennissen AM, Mongeluzi DL, Dudek CJ, Chen XY, Wolpaw JR. An *in vitro* protocol for recording from spinal motoneurons of adult rats. *Journal of Neurophysiology* 100:474-481 (2008).

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

Carp JS, Wolpaw JR. Motor neurons and spinal control of movement. *Encyclopedia of Life Sciences* DOI: 10.1002/9780470015902.a0000156.pub2 (2010).

Carp JS, Tennissen AM, Liebschutz JE, Chen XY, Wolpaw JR. External urethral sphincter motoneuron properties in adult female rats studied *in vitro*. *Journal of Neurophysiology* 104:1286-1300 (2010).

Recent Abstracts:

Carp JS, Tennissen AM, Chen XY, Liebschutz JE, Markowicz P, Wolpaw JR. Spinal transection in adult rats alters intrinsic properties of external urethral sphincter motoneurons recorded *in vitro*. Abstract Viewer/Itinerary Planner, Online. Program No. 372.14. Washington, DC: *Society for Neuroscience* (2009).

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Chen XY, Chen Y, Chen L, Liu RL, Wang Y, Carp JS, English AW, Wolpaw JR. Soleus H-reflex up-conditioning may improve soleus function after peripheral nerve injury. Abstract Viewer/Itinerary Planner, Online. Program No. 79.4. Washington, DC: *Society for Neuroscience* (2009).

Carp JS, Tennissen AM, Chen XY, Wolpaw JR. Differences in excitability between external urethral sphincter and hindlimb motoneurons from adult rats recorded in vitro. Abstract Viewer/Itinerary Planner, Online. Program No. 685.6. Washington, DC: *Society for Neuroscience* (2010).

Carp JS, LaPallo BK, Chen XY, Wolpaw JR. External urethral sphincter muscle activity and bladder length recorded in freely moving adult female rats: methods development. Abstract Viewer/Itinerary Planner, Online. Program No. 93.14. Washington, DC: *Society for Neuroscience* (2011).

LaPallo BK, Chen XY, Wolpaw JR, Carp JS. Bladder length changes recorded during cystometry in anesthetized adult female rats: Methods development. Abstract Viewer/Itinerary Planner, Online. Program No. 393.13. Washington, DC: *Society for Neuroscience* (2011).

LaPallo BK, Carp JS, Chen XY, Wolpaw JR. External urethral sphincter activity recorded during voiding in unanesthetized intact and spinal-transected rats. Abstract Viewer/Itinerary Planner, Online. Program No. 484.04. Washington, DC: *Society for Neuroscience* (2012).

Carp JS, LaPallo BK, Horwich AL, Chen XY, Wolpaw JR. Electrophysiological properties of spinal motoneurons from transgenic ALS mice recorded in vitro. Abstract Viewer/Itinerary Planner, Online. Program No. 858.11. Washington, DC: *Society for Neuroscience* (2012).

LaPallo BK, Carp JS, Chen XY, Wolpaw JR. Chronic recording of external urethral sphincter EMG and urine output before and after L1 spinal transection in female rats. Washington, DC: *Society for Neuroscience Online* (2013).

Carp JS, LaPallo BK, Chen XY, Wolpaw JR. Upper lumbar spinal transection in adult rats alters intrinsic properties of external urethral sphincter motoneurons recorded in vitro. Washington, DC: *Society for Neuroscience Online* (2013).

Ongoing Research Support

R01 NS22189
04/01/85-04/30/14
NIH/NINDS

Wolpaw (PI)

Adaptive Plasticity in the Spinal Stretch Reflex

The goal is to delineate the complex pattern of brain and spinal cord plasticity that underlies spinal reflex conditioning.

Role: Co-Investigator

R01-NS061823
02/01/08-01/31/14

Wolpaw & Chen (Co-PIs)

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NIH/NINDS

Spinal Reflex Conditioning and Locomotion

The goal of this project is to evaluate the complex motor effects of reflex conditioning protocols.

Role: Co-Investigator

R01 HD36020

Chen (PI)

05/01/97-07/31/14

NIH/NICHD

Supraspinal Control of Spinal Cord Plasticity

The goal of this research is to define the complementary roles of cortex and cerebellum in reflex conditioning and to show that conditioning can be targeted to modify specific aspects of motor function.

Role: Co-Investigator

R01 NS069551

Thompson (PI)

09/01/10-05/31/15

NIH/NINDS

Changing a Reflex to Improve Locomotion

The goal is to investigate the impact of changing a spinal reflex on impaired locomotion in people with chronic incomplete spinal cord injury.

Role: Co-Investigator

Recent Funded Research:

PI, Award #14953, Craig H. Neilsen Foundation, 07/01/2010 - 02/28/2013, TDC: \$249,999

Title: Role of Interneurons in Urethral Sphincter Motoneuron Dysfunction after SCI

PI, Subcontract with A. L. Horwich, Howard Hughes Medical Institute, Yale University, 10/1/2012 - 3/31/2013, TDC: \$30,000, Title: Electrophysiological Properties of Spinal Motoneurons of Transgenic G85R-SOD1-YFP Mice.

Grant Approved for Funding (New York State SCIRB Program was suspended in 2010):

PI, New York State Spinal Cord Injury Research Trust Fund, applied 9/2009, TDC: \$259,572,

“Role of abnormal urethral sphincter motoneuron properties in urinary tract dysfunction after spinal cord injury”

Invited Presentations:

10/89 Hudson-Berkshire Chapter of Society for Neuroscience

6/93 Department of Brain and Cognitive Sciences, Massachusetts Institute of Technology

5/95 Hudson-Berkshire Chapter of Society for Neuroscience

5/00 Wadsworth Center

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2/01 Neuromuscular Research Center, Boston University
6/02 Symposium "Motoneurons and Muscles," Groningen, The Netherlands
6/07 Symposium "Quantification & mechanisms of impaired motor control,"
Northwestern University
2/10 Light Microscopy User Group, Wadsworth Center
7/10 Motoneuron Meeting, Université Paris-Descartes, Paris, France
3/11 Department of Neurobiology and Behavior, SUNY at Stony Brook

TEACHING ACTIVITY

Graduate Courses Taught, School of Public Health, University at Albany:

9/01-12/01 Organized module on "Nervous System Plasticity" in BMS 601 (SPH)
11/97-present Annual lecture on "Nervous System Plasticity" in BMS 612 (SPH)
9/07-5/10 Co-director, BMS 655 (Current Literature in Neuroscience)
9/10-present Director, BMS 655 (Current Literature in Neuroscience)

Other Teaching Experience:

6-8/91&92 Supervised summer students in analysis of electrophysiological data and taught
computer programming
3/93-5/93 Tutor in neurophysiology for Biomedical Sciences Ph.D. candidate (SPH)

Dissertation Committees:

10/89-5/90 Member of thesis committee for M.S. candidate Catherine Forneris (Dept.
Biomedical Sciences, School of Public Health, SUNY at Albany)
1/03-5/04 Member of thesis committee for Ph.D. candidate Keri Cannon (Center for
Neuroscience and Neuropharmacology, AMC)
9/10-present Advisor for Ph.D. candidate Brandon LaPallo (Dept. Biomedical Sciences,
School of Public Health, SUNY at Albany)
1/11-12/11 Member of thesis committee for Ph.D. candidate Stephen D'Amico (Dept.
Neurobiology & Behavior, SUNY at Stony Brook)

SERVICE ACTIVITY:

School of Public Health:

9/97-5/98 Member, Curriculum Committee (SPH)
5/00 Judge for Student Poster Day (SPH)

Professional Review Service:

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Journals:

Brain Research, European Journal of Neuroscience, Experimental Brain Research, Experimental Neurology, IEEE Transactions on Neural Systems and Rehabilitation Engineering, Journal of Applied Physiology, Journal of Biological Rhythms, Journal of Biomedicine and Biotechnology, Journal of Comparative Neurology, Journal of Neurobiology, Journal of Neurophysiology, Journal of Neuroscience, Journal of Neuroscience Methods, Journal of Neurotrauma, Medical & Biological Engineering & Computing, Microscopy Research and Technique, Nature Communications, Neural Plasticity, Neurology, Neurourology and Urodynamics, Neuroscience, Neuroscience Letters, Somatosensory and Motor Research

Book:

Handbook of Physiology (American Physiological Society)

Grants:

American Paralysis Association, Christopher Reeve Paralysis Foundation, International Spinal Research Trust, National Science Foundation, New York State Research Board, Paralyzed Veterans of America, Swiss National Science Foundation, Reeve-Irvine Research Center Study Section, Veterans Administration

Other Service Activities:

5/97-8/97	Mentor to high school student for independent study project
5/01-8/01	Mentor to high school student for independent study project
2/02-5/02	Mentor to high school student for independent study project
1/03	External examiner for high school student's senior presentation

Professional Affiliations:

Society for Neuroscience (1984-present)