BIOGRAPHICAL SKETCH

Provide the following information for the key personnel in the order listed for Form Page 2.
Follow the sample format for each person. **DO NOT EXCEED FOUR PAGES.**

NAME	POSITION TITLE
V. Reggie Edgerton, Ph.D.	Professor
eRA COMMONS USER NAME Edgerton2	

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
East Carolina University, Greenville, NC	B.S.	1962	Phys. Educ./Biology
Iowa State University, Iowa City, IA	M.S.	1963	Physical Education
Michigan State University, East Lansing, MI	Ph.D.	1968	Exercise Physiology

A. Positions and Honors

6-1-68 to 5-30-71	Assistant Professor, University of California, Los Angeles (UCLA), Dept. of Kinesiology
6-1-72 to 5-30-76	Associate Professor, UCLA, Dept. of Kinesiology
1-1-75 to 7-1-75	Visiting Scientist, University of Goteborg, Sweden, Dept. of Physiology
6-1-76 to 6-30-85	Professor, UCLA, Dept. of Kinesiology
5-1-85 to 7-1-85	Visiting Scholar, Visiting Scientist, Panum Institute, University of Copenhagen, Denmark
7-1-85 to 1989	Professor/Chair, UCLA, Dept. of Kinesiology
1989 to present	Professor, UCLA, Dept. of Physiological Science
1996 to 2001	Professor/Vice Chair, UCLA, Dept. of Physiological Science
1999 to present	Professor, UCLA, Department of Neurobiology
2001 to present	Professor, UCLA, Dept. of Physiological Science and the Brain Research Institute
2002 to 2003	Acting Director of the Brain Research Institute, UCLA

B. Selected peer-reviewed publications (in chronological order)

(Publications selected from 376 peer-reviewed publications)

Timoszyk, W.K., de Leon, R.D., London, N., Joynes, R., Minakata, K., Roy, R.R., Edgerton, V.R., and Reinkensmeyer, D.J. Robot-assisted locomotion training after spinal cord injury: Comparison of rodent stepping in virtual and physical treadmill environments. *Robotica* 21:25-32, 2003.

Edgerton, V.R., and Roy, R.R. Paralysis recovery in humans and model systems. *Curr. Opinion Neurobiol.* 12:658-667, 2002.

de Leon, R.D., Kubasak, M.D., Phelps, P.E., Timoszyk, W.K., Reinkensmeyer, D.J., Roy, R.R., and Edgerton, V.R. Using robotics to teach the spinal cord to walk. *Brain Res. Reviews* 40:267-273, 2002.

Tamaki, T., Shiraishi, T., Takeda, H., Matsumiya, T., Roy, R.R. and Edgerton, V.R. Anabolic-androgenic steroids enhance hypothalamic biogenic amines in rats. *Med. Sci. Sports Exerc.* 35:32-38, 2003.

Timoszyk, W.K., de Leon, R.D., London, N., Joynes, R., Minakata, K., Roy, R.R., Edgerton, V.R. and Reinkensmeyer, D.J. Comparison of virtual and physical treadmill environments for training stepping after spinal cord injury. *Robotica* 21:25-32, 2003.

Finni T, Hodgson JA, Lai AM, Edgerton VR, Sinha S. Mapping of movement in the isometrically contracting human soleus muscle reveals details of its structural and functional complexity. *J Appl Physiol*. 95:2128-33. 2003.

Haddad, F., Roy, R.R., Zhong, H., Edgerton, V.R., and Baldwin, K.M. Atrophy responses to muscle inactivity. I. Cellular markers of protein deficits. *J Appl Physiol*. 95:781-90. 2003.

Haddad, F., Roy, R.R., Zhong, H., Edgerton, V.R., and Baldwin, K.M. Atrophy responses to muscle inactivity. II. Molecular markers of protein deficits. *J Appl Physiol*. 95:791-802. 2003.

Hyatt, J.P., Roy, R.R., Baldwin, K.M. and Edgerton, V.R. Nerve activity-independent regulation of skeletal muscle atrophy: role of MyoD and Myogenin in satellite cells and myonuclei. *Am J Physiol Cell Physiol*. 285:C1161-73. 2003.

Ying, Z., Roy, R.R., Edgerton, V.R. and Gomez-Pinilla, F. Voluntary exercise increases neurotrophin-3 and its receptor TrkC in the spinal cord. *Brain Res.* 987:93-99. 2003.

Finni T, Hodgson JA, Lai AM, Edgerton VR, Sinha S. Nonuniform strain of human soleus aponeurosis-tendon complex during submaximal voluntary contractions in vivo. J Appl Physiol. 95:829-37. 2003

Edgerton, V.R., Tillakaratne, N.J.T., Bigbee, A.J., de Leon, R.D. and Roy, R.R. Plasticity of the spinal circuitry after injury. Ann. Rev. Neurosci. 27:145-167, 2004.

Fong, A.J., Cai, L.L., Otoshi, C.K., Reinkensmeyer, D.J., Burdick, J.W., Roy, R.R., and Edgerton, V.R. Spinal cord-transected mice learn to step in response to quipazine treatment and robotic training. *J. Neurosci.* 25:11738-11747, 2005

Cai, L.L., Fong, A.J., Otoshi, C.K., Liang, Y.Q., Cham, J.G., Zhong, H., Roy, R.R., Edgerton, V.R., and Burdick, J.W. Effects of consistency vs. variability in robotically controlled training of stepping in adult spinal mice. *Proc. Int. Conference Rehab. Robotics*. pp. 575-579, 2005.

Edgerton, V.R., Kim, S.J., Ichiyama, R.M., Gerasimenko, Y.P., and Roy, R.R. Rehabilitative therapies after spinal cord injury. *J. Neurotrauma*. 23(3-4): 560-570. Mar-Apr 2006.

Courtine, G., Roy, R.R., Hodgson, J., McKay, H.,, Raven, J., Zhong, H., Yang, H., Tuszynski, M.H., and Edgerton, V.R. Kinematic and EMG determinants in quadrupedal locomotion of a non-human primate (Rhesus). *J. Neurophysiol.* 93(6):3127-45, 2005.

Ichiyama, R.M., Gerasimenko, Y.P., Zhong, H., Roy, R.R., and Edgerton, V.R. Hindlimb stepping movements in complete spinal rats induced by epidural spinal cord stimulation. Neurosci Lett. 383(3):339-44, 2005

Courtine, G., Roy, R.R., Raven, J., Hodgson, J., McKay, H., Yang, H., Tuszynski, M.H., and Edgerton, V.R. Performance of locomotion and foot grasping following a unilateral thoracic corticospinal tract lesion in the Rhesus monkey. *Brain* 2338-58, 2005.

Fong AJ, Cai LL, Otoshi CK, Reinkensmeyer DJ, Burdick JW, Roy RR, Edgerton VR. Spinal cord-transected mice learn to step in response to quipazine treatment and robotic training. *J Neurosci.*;25(50):11738-47, 2005.

Edgerton, V.R., Kim, S.J., Ichiyama, R.M., Gerasimenko, Y.P., and Roy, R.R. Rehabilitative therapies after spinal cord injury. *J. Neurotrauma*. 23(3-4): 560-570, 2006.

Cai, L.L., Burdick, J.W., Fong, A.J., Courtine, G., Roy, R.R., and Edgerton, V.R. Plasticity of functional connectivity in the adult spinal cord. *Phil. Trans. Roy. Soc. B: Biol. Sci.* 361(1473):1635-46, 2006.

Gerasimenko, Y.P., Lavrov, I.A., Courtine, G., Ichiyama, R.M., Zhong, H., Roy, R.R., and Edgerton, V.R. Spinal cord reflexes induced by epidural spinal cord stimulation in normal rats. *J. Neurosci. Methods*. 157(2):253-63, 2006.

Lavrov, I.A., Gerasimenko, Y.P., Courtine, G., Ichiyama, R.M., Zhong, H., Roy, R.R.**,** and Edgerton, V.R. Restoration of spinal cord reflexes after a complete transection in adult rats. *J. Neurophysiol.* 96(4):1699-1710, 2006.

Gerasimenko Y.P., Ichiyama, R.M., Lavrov, I.A., Courtine, C., Cai, L., Zhong, H., Roy, R.R., and Edgerton, V.R. Epidural spinal cord stimulation plus quipazine administration enable stepping in complete spinal adult rats. *Journal of Neurophysiology*. 98(5):2525-2536. 2007.

Courtine G, Binge M.B, Fawcett J.W, Grossman R.G, Kaas J.H, Lemon R, Maier I, Nudo R.J, Ramon-Cueto A, Rouiller E.M, Schnell L, Wannier T, Schwab M.E, and Edgerton V.R. Can experiments in nonhuman primates expedite the translation of treatments for spinal cord injury in humans? *Nature Medicine.* 13(2):561-566.2007.

Rodger, D.C; Fong, A.J; Li, W; Ameri, H; Ahuja, A.K; Gutierrez, C; Lavrov, I; Zhong, H; Menon, P.R; Meng, E; Burdick, J.W; Roy, R.R; Edgerton, V.R; Weiland, J.D; Humayun, M.S; and Tai, Y.C. Flexible Parylene-based Multielectrode Array Technology for High-density Neural Stimulation and Recording. *Sensors and Actuators: B. Chemical.* 1385-1388, 2007.

Courtine, G., Song, B., Roy, R.R, Zhong, H, Herrmann, J.E, Ao, Y, Qi, J, Edgerton, V.R, and Sofroniew, M.V. Recovery of supraspinal control of stepping via indirect propriospinal relay connections after spinal cord injury. *Nature Medicine.* 69-74. 2008.

Edgerton, V.R, Courtine, G., Gerasimenko, Y., Lavrov, I., Ichiyama, R., Fong, A., Cai, L., Otoshi, C., Tillakaratne, N., Burdick, J., and Roy, R.R. Training Locomotor Networks. *Brain Research Reviews*. 57(1):241-256. 2008.

Button, D.C., Kalmar, J.M., Gardiner, K., Marqueste, T., Zhong, H., Roy, R.R., Edgerton, V.R., and Gardiner, P.F. Does elimination of afferent input modify the changes in rat motoneuron properties that occur following chronic spinal cord transection? *J.Physiol.* 586(2):529-44 2008.

Gerasimenko Y, Roy R.R, and Edgerton V.R. Epidural stimulation: Comparison of the spinal circuits that generate and control locomotion in rats, cats and humans. *Experimental Neurology*. 209(2):417-25.2008.

Lavrov I, Dy CJ, Fong AJ, Gerasimenko Y, Courtine G, Zhong H, Roy RR, Edgerton VR. Epidural stimulation induced modulation of spinal locomotor networks in adult spinal rats. J Neurosci., 28(23): 6022-6029, 2008.

Ichiyama RM, Gerasimenko Y, Jindrich DL, Zhong H, Roy RR, Edgerton VR. Dose dependence of the 5-HT agonist quipazine in facilitating spinal stepping in the rat with epidural stimulation. Neurosci Lett., 438(3): 281-5, 2008.

Gerasimenko Y, Musienko, P., Bogacheva, I., Moshonkina, T., Savochin, A., Lavrov, I., Roy R.R, and Edgerton V.R. Propriospinal By-Pass of the Serotonergic System That Can Facilitate Stepping. *J Neurosci.,* In Press.

ACTIVE

VEC-2007 (1) Edgerton (PI) 1/1/06-12/31/09
CRPF Research Consortium on Spinal Cord Injury
Activity-Dependent Plasticity Following Spinal Cord Injury
The purpose of the consortium is to combine collaborators from multiple fields to understand and develop solutions for individuals with spinal cord injury. Role: Principal Investigator

8275003 Edgerton (PI) 3/16/09-3/15/10
Army TATRC
Electrode Array Development for Recovery of Stepping Following Spinal Cord Injury.
The major goal of this project is to develp an electrode array that can be chronically implanted to facilitate stepping after spinal injury.
Role: Principal Investigator

1 R01 NS 054159 Edgerton (PI) 4/1/06-3/31/10
NIH
Combined OEG Transplantation and Step Training Promote Regeneration in Adult SCI
The project will determine the potential of transplantation of growth-promoting olfactory ensheathing glia (OEG) combined with 6 months of treadmill step training to promote axon regeneration following complete spinal cord transection in adult rats. Role: Principal Investigator

1 R01 AR053343-01 Sinha (PI) 7/15/06-6/30/10
NIH
In-vivo MR Tractography and FEM Study of Human Lower Leg
The project goal is to utilize multidisciplinary methodologies to probe the basic science questions to develop a muscle model for better prediction of intrinsic muscle properties and joint performance. Role: Co-Investigator

2 R01 NS042291-05A1 Tuszynski (PI) 3/1/06-2/28/11
NIH
Plasticity and Regeneration in the Primate Spinal Cord
The aim of this project is to contribute both mechanistic and practical knowledge leading to the development of therapeutic strategies for promoting recovery from primate SCI.
Role: Co-Investigator

1R01 EB007615 Edgerton (PI) 9/1/08-8/31/13
NIH
Spinal Epidural Electrode Array to Facilitate Standing and Stepping after SCI
The major goals of this project are (1) to develop and test a range of microarray models and their efficacy in inducing spinal evoked potentials and in facilitating locomotion in complete spinal rats and (2) to determine the efficacy of conventional epidural electrodes in facilitating locomotion in human subjects with spinal cord

injuries.
Role: Principal Investigator

R01 NS 056413 Gomez-Pinella (PI) 12/1/08 – 11/30/13
NIH
Neurotrophins Support Spinal Cord Learning and Rehabilitation
The major goal of this project is to determine the role of BDNF in spinal learning.
Role: Co-Investigator

Completed Research Support in the last 3 years

NIH P01 NS 16333 Edgerton (PI) 5/1/03-4/30/08
Neuromuscular Plasticity, Functional Recovery after Spinalization
The major goals of this project are to study the neuronal and muscular activity-dependent plasticity associated with locomotion following complete thoracic spinal cord injury.
Role: Program Director; Principal Investigator, Project II

NIH 1 R01HD044830-01 Edgerton (PI) 7/1/03-6/30/08
Interactions of Serotonergic Facilitation and Robotics in Spinal Learning
The goals of this project are to investigate the cellular mechanisms agonists of the 5-HT system and to explore novel combinations of sophisticated training strategies and pharmacology that may yield an optimal rehabilitation paradigm for severely injured patients.
Role: Principal Investigator

NIH 8 R01 EB0020968-02 Edgerton (PI) 6/1/02-5/31/07
Robotically Generated Locomotion in Rodents
The major goal of this project is to develop robotically-based methods and technologies to train and test rat locomotion.
Role: Principal Investigator

NIH 1 R01 NS40917 Tillakaratne (PI) 4/15/02-3/31/07
Use-dependent plasticity of spinal inhibition
The central hypothesis of this proposal is that repetitive training for a specific task selectively modulates the inhibitory capacity of associated sensory-motor pathways.
Role: Co-Investigator

CRPF Research Consortium on Spinal Cord Injury VEC-2002 &2005 (3) Edgerton (PI) 6/06/01 – 12/31/06
Quantification of Locomotor Performance in Adult Spinal Rats and Mice
The purpose of the consortium is to combine collaborators from multiple fields to understand and develop solutions for individuals with spinal cord injury.
Role: Principal Investigator

NIH R01 NS42291-01 Tuszynski (PI) 9/1/01 – 7/31/06
Plasticity and Regeneration in the Primate Spinal Cord
The major goal of this project is to focus on developing a reliable and practical model with which to study spinal cord injury in primates.
Role: Co-Investigator

NIH/NINDS 1 R01 NS046523:01A1Judy (PI) 3/01/04-2/28/2006
Recording/Stimulation of Stepping in Spinal Cord L1-L2
The major goals of this project are to study the effects of stimulation on L1 and L2 following complete spinal cord injury.
Role: Co-Investigator