

CURRICULUM VITAE
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Educational Background

Louisiana State University
Baton Rouge, LA

Ph.D.; Physiology, 1985
Cell biology minor

Institute of Environmental Stress
University of California
Santa Barbara, CA

Postdoctoral Study
May-August 1982

University of Tennessee
Knoxville, TN

Ed.D.; Exercise Physiology,
1980; Zoology minor

University of Georgia
Athens, GA

M.Ed.; Exercise Physiology
1973;

Carson Newman College
Jefferson City, TN

B.S.; Physical Education
1972

Professional Background

UAA Endowed Professor/Distinguished Professor
Dept. of Applied Physiology and Kinesiology
Director, Center for Exercise Science
Adjunct Professor: Dept. of Physiology,
School of Medicine

University of Florida
Gainesville, FL
2004-Present

Professor and Chair
Dept. of Exercise & Sport Sciences
Director, Center for Exercise Science
Adjunct Professor: Dept. of Physiology,
School of Medicine

University of Florida
Gainesville, FL
2002-2003

Professor Dept. of Exercise & Sport Sciences Director, Center for Exercise Science Adjunct Professor: Dept. of Physiology, School of Medicine	University of Florida Gainesville, FL 1998-2002
Professor Dept. of Exercise & Sport Sciences Co-Director, Center for Exercise Science Adjunct Professor: Dept. of Physiology, School of Medicine	University of Florida Gainesville, FL 1991-1997
Associate Professor Dept. of Exercise & Sport Sciences Co-Director, Center for Exercise Science Adjunct Professor: Dept. of Physiology, School of Medicine	University of Florida Gainesville, FL 1988 - 1990
Associate Professor Dept. of Kinesiology Director, Applied Physiology Laboratory Coordinator, Exercise Physiology Graduate Studies; Adjunct Professor - Dept. of Physiology, Pharmacology, and Toxicology (School of Veterinary Medicine)	Louisiana State University Baton Rouge, LA 1986 to 1988
Assistant Professor Dept. of Kinesiology Director, Applied Physiology Laboratory Coordinator, Exercise Physiology Graduate Studies	Louisiana State University Baton Rouge, LA 1981 to 1982 ¹
Assistant Professor Dept. of Kinesiology	Louisiana State University Baton Rouge, LA 1980-1981
Graduate Teaching Assistant	University of Tennessee Knoxville, TN 1977-1980
Public School Teacher	Griffin Middle School Atlanta, GA 1974-1977
Graduate Teaching Assistant	University of Georgia 1972-1973

¹Assumed part-time (50%) teaching appointment during 1982-85 to complete Ph.D. in physiology

Additional Educational training

Recombinant DNA course (40 hours): Center for Biotechnology, University of Florida, 1992.

Visiting Professorship-sabbatical

Department of Physiology, Medical College of Wisconsin, Milwaukee, June-August, 1987.

Department of Cell and Molecular Biology, University of California-Berkeley, Spring 1997.

Honors

Outstanding Graduate Student-Department of Physical Education, School of HPERD, University of Tennessee, 1980

Fellow of the American College of Sports Medicine, 1984

President, Southeastern Chapter of the American College of Sports Medicine, 1986

Visiting Scholar Award, 1987, Awarded by the American College of Sports Medicine

Teacher of the year, Department of Exercise and Sport Sciences, University of Florida, 1992

Teacher Improvement Award, University of Florida, 1993

Scholar of the year, Southeastern American College of Sports Medicine, 1995

Fellow, American Academy of Kinesiology and Physical Education (elected 1995)

Career Enhancement Award-American Physiological Society, 1996

Selected for American College of Sports Medicine Scholar-Lecture tour, 1996

Teacher Improvement Award, University of Florida, 1996

Vice President, American College of Sports Medicine, 1997-99

Professional Excellence Award, University of Florida, 1998

University of Florida Graduate Research Professor, 2000

Presented the "Presidents lecture" at 2002 American College of Sports Medicine Annual Meeting

Awarded UAA Endowed Professorship, 2004

Awarded ACSM Citation Award, 2005

Awarded Distinguished Professorship, University of Florida, 2005

Outstanding Alumni Award in Exercise Science, University of Tennessee, 2006

Faculty Achievement Recognition, University of Florida, 2007

David R. Lamb Excellence in Education Award, 2008

University of Florida Doctoral Dissertation Advisor/Mentoring Award, 2009

Elected Chair of Environmental and Exercise Physiology Section-American Physiological Society, 2010

Chair of Program Committee, Integrated Physiology of Exercise Meeting 2010

Refereed Publications (188 total)

Kavazis, A. S. Alvarez, E. Talbert, Y. Lee, and **S.K. Powers**. Exercise training induces a cardioprotective phenotype and alterations in cardiac sarcolemmal and intermyofibrillar mitochondrial proteins. American Journal of Physiology. 297:H144-152, 2009.

Figueiredo, P., **S.K. Powers**, R. Ferreira, F. Amado, H. J. Appell, and J.A. Duarte. Impact of lifelong sedentary behavior on mitochondrial function in skeletal muscle. Journal of Gerontology A. Biological Science and Medical Science. 64:927-939, 2009.

Figueiredo, P., **S.K. Powers**, R. Ferreira, H. J. Appell, and J.A. Duarte. Aging impairs mitochondrial bioenergetic function. Journal of Gerontology A. Biological Science and Medical Science. 64A:21-33, 2009.

Kavazis, E. Talbert, A. J. Smuder, M. Hudson, W. Nelson, and **S.K. Powers**. Mechanical ventilation-induces diaphragmatic mitochondrial dysfunction and increased oxidant production. Free Radical Biology and Medicine. 46: 842-850, 2009.

J. M. McClung, J.M. A.R. Judge, E.E. Talbert, and **S.K. Powers**. Calpain-1 is required for hydrogen peroxide induced myotube atrophy. American Journal of Physiology: Cell. 296: C363-C371, 2009.

Whiddon, M. J. McClung, D. J. Falk, M. Hudson, A. Smuder, W. B. Nelson, and **S. K. Powers**. Xanthine oxidase contributes to mechanical ventilation-induced diaphragmatic oxidative stress and contractile dysfunction. Journal of Applied Physiology. 106:385-394, 2009.

McClung, J. D. Van Gammeren, M.A. Whidden, D.J. Falk, A. N. Kavazis, M. B. Hudson, G. Gayan-Ramirez, M. Decramer, K. C. Deruisseau, and **S. K. Powers**. Apocynin attenuates diaphragm oxidative stress and protease activation during prolonged mechanical ventilation. Critical Care Medicine. 37:1374-1379, 2009.

Staib J., N. Tümer, **S. K. Powers**. Increased temperature and protein oxidation signal HSP72 mRNA and protein accumulation in the *In Vivo* exercised rat heart. Experimental Physiology. 94:71-80, 2008.

Maes, K., D. Testelmans, P. Cadot, K. Deruisseau, **S. Powers**, M. Decramer, and G. Gayan-Ramirez. Effects of acute administration of corticosteroids during mechanical ventilation on rat diaphragm. American Journal of Respiratory Care and Critical Care Medicine. 178:1219-1226, 2008.

Powers, S., J. Quindry, and A. Kavazis. Exercise-induced cardioprotection against myocardial ischemia-reperfusion injury. Free Radical Biology and Medicine. 44:193-201, 2008.

Powers, S. and M. Jackson. Exercise-induced oxidative stress: cellular mechanisms and impact on skeletal muscle force production. Physiological Reviews. 88:1243-1276, 2008.

French, J. K. Hamilton, J. Quindry, Y. Lee MS, P. Upchurch and **S. K. Powers** Exercise induced protection against myocardial apoptosis and necrosis: MnSOD, calcium handling proteins, and calpain. FASEB Journal. 22: 2862-2871, 2008.

Levine, S, T. Nguyen, N.Taylor, M. Friscia, M. Budak, P. Rothenberg, J. Zhu, R. Sachdeva, S. Sonnad, L. Kaiser, N. Rubinstein, **S. K. Powers**, and J. Shrager. Rapid disuse atrophy of diaphragm fibers in mechanically ventilated humans. New England Journal of Medicine. 358:1327-1335, 2008.

Ogura, Y., H. Naito, S. Akin, N. Ichinoseki-Sekine, M. Kurosaka, R. Kakigi, T. Sugiura, **S.K. Powers**, S. Katamoto, and H. Demirel. Elevation of body temperature is essential factor for exercise-increased extracellular heat shock protein 72 in rat plasma. American Journal of Applied Physiology. 294:R1600-R1607, 2008.

McClung, J., M. Whidden, A. Kavazis, D. Falk, K. Deruisseau, and **S. K. Powers**. Redox regulation of diaphragm proteolysis during mechanical ventilation. American Journal of Physiology. 294:R1608-R1617, 2008.

Kavazis, A., J. McClung, D. Hood, and **S.K. Powers**. Exercise-induces a cardiac mitochondrial phenotype that resists apoptotic stimuli. American Journal of Physiology. 294:H928-H935, 2008.

McClung, J., A. Kavazis, K. Deruisseau, D. Criswell, D. Falk, M. Whidden, and **S.K. Powers**. Influence of Oxidative Stress on IGF-1/PI3K/Akt regulation of FOXO transcription factors during skeletal muscle disuse. Journal of Physiology (London). 585:203-215, 2007.

Kavazis, A., K. Deruisseau, J. McClung, M. Whidden, D. Falk, A. Smuder, T. Sugiura, and **S.K. Powers**. Diaphragmatic proteasome function is maintained in the ageing Fisher 344 rat. Experimental Physiology. 92:895-901, 2007.

Murlasits, Z., Y. Lee, and **S.K. Powers**. Short-term exercise does not increase ER stress protein expression in cardiac muscle. Medicine in Science in Sports and Exercise. 39:1522-1588, 2007.

Powers, S., A. Kavazis, and J. McClung. Oxidative stress and disuse muscle atrophy. Journal of Applied Physiology. 102:2389-2397, 2007.

Powers, S., Z. Murlasits, M. Wu, and A. Kavazis. Ischemia-reperfusion-induced cardiac injury: A brief review. Medicine and Science in Sports and Exercise. 39:1529-39, 2007.

Quindry, J., K. Hamilton, J. French, Z. Murlasits, N. Tumer, and **S. K. Powers**. Exercise-induced HSP-72 elevation and cardioprotection against infarct and apoptosis. Journal of Applied Physiology. 103:1056-1062, 2007.

Maes, K., D. Testelmans, **S. K. Powers**, M. Decramer, and G. Gayan-Ramirez. Leupeptin inhibits ventilator-induced diaphragm dysfunction in rats. American Journal of Respiratory and Critical Care Medicine. 175:1134-1138, 2007.

Testelmans, D., K. Maes, P. Wouters, S. K. Powers, M. Decramer, and G. Ramirez. Infusions of rocuronium and cisatracurium exert different effects on rat diaphragm function. Intensive Care Medicine. 33:872-879, 2007.

McClung, J., A. Kavazis, K. DeRuisseau, D. Falk, M. Deering, L. Lee, T. Sugiura, and **S.K. Powers**. Caspase-3 regulation of diaphragm myonuclear domain during mechanical ventilation-induced atrophy. American Journal of Respiratory and Critical Care Medicine. 175:150-159, 2007.

Staib, J., J. Quindry, J. French, D. Criswell, and **S.K. Powers**. Increased temperature, not cardiac load, activates heat shock transcription factor I and heat shock protein 72 expression in the heart. American Journal of Physiology. R432-R439, 2007.

Van Gammeren, D., D. J. Falk, M. A. Deering, K. C. DeRuisseau, and **S. K. Powers**. Diaphragmatic Nitric Oxide Synthase is Not Induced during Mechanical Ventilation. Journal of Applied Physiology. 102:157-162, 2007.

Sugiura, T., N. Ito, K. Goto, H. Naito, T. Yoshioka, and **S.K. Powers**. Estrogen administration attenuates immobilization-induced skeletal muscle atrophy in male rats. Journal of Physiological Sciences. 56:393-399, 2006.

Testelmans, D., K. Maes, P. Wouters, N. Gosselin, K. Deruisseau, **S. K. Powers**, R. Sciote, M. Decramer, and G. Gayan-Ramirez. Rocuronium exacerbates mechanical ventilation-induced diaphragm dysfunction in rats. Critical Care Medicine. 34:3018-3023, 2006.

Falk, D. J., K.C. DeRuisseau, D.L. Van Gammeren, M.A. Deering, A.N. Kavazis, and **S.K. Powers**. Mechanical ventilation promotes redox status alterations in the diaphragm. Journal of Applied Physiology. 101: 1017-1024, 2006.

DeRuisseau, K., A. Kavazis, S. Judge, Z. Murlasits, M. Deering, J. Quindry, Y. Lee, D. Falk, C.

Leeuwenburgh, and **S.K. Powers**. Moderate caloric restriction increases diaphragmatic antioxidant enzyme mRNA, but not when combined with lifetime exercise. Antioxidants and Redox Signaling. 8:539-547, 2006.

French, J., J. Quindry, D. Falk, J. Staib, Y. Lee, K. K. Wang, and **S. K. Powers**. Ischemia-reperfusion induced calpain activation and SERCA2a degradation are attenuated by exercise training and calpain inhibition. American Journal of Physiology. 290:H128-H136, 2006.

DeRuisseau, K., R. Shanely, N. Akunuri, M. Hamilton, D. Van Gammeren, A. Zergeroglu, M. McKenzie, and **S.K. Powers**. Diaphragm unloading via controlled mechanical ventilation alters the gene expression profile. American Journal of Respiratory and Critical Care Medicine. 172:1267-1275, 2005.

DeRuisseau, K., A. Kavazis, and **S. K. Powers**. Selective downregulation of ubiquitin conjugation cascade mRNA occurs in the senescent rat soleus muscle. Experimental Gerontology. 40:526-531, 2005.

Van Gameren, D., D. Falk, K. DeRuisseau, J. Sellman, M. Decramer, and **S. K. Powers**. Reloading the diaphragm following mechanical ventilation does not promote injury. Chest. 127:2204-2210, 2005.

Powers, S., A. Kavazis, and K. DeRuisseau. Mechanisms of disuse muscle atrophy: role of oxidative stress. American Journal of Physiology. 288:R337-344, 2005.

Carmeli, E., M. Moas, S. Lennon, and **S.K. Powers**. High intensity exercise increases expression of matrix metalloproteinases in fast skeletal muscle fibers. Experimental Physiology. 90: 613-619, 2005.

Quindry, J., J. French, K. Hamilton, Y. Lee, J. Mehta, and **S. K. Powers**. Exercise training provides cardioprotection against ischemia-reperfusion induced apoptosis in young and old animals. Experimental Gerontology. 40:416-425, 2005.

Sugiura, T., N. Abe, M. Nagano, K. Goto, K. Sakuma, H. Naito, T. Yoshioka, T., and **S. K. Powers**. Changes in protein kinase B (PKB/Akt) and calcineurin signaling during recovery in atrophied soleus muscle induced by unloading. American Journal of Physiology. 288:R1273-R1278, 2005.

DeRuisseau, K., A. Kavazis, M. Deering, D. Falk, D. Van Gammeren, T. Yimlamai, G. Ordway, and **S. K. Powers**. Mechanical ventilation induces alterations of the ubiquitin-proteasome pathway in the diaphragm. Journal of Applied Physiology. 98:1314-1321, 2005.

Bettors, J., D. S. Criswell, R. A. Shanely, D. Van Gammeren, D. Falk, K. DeRuisseau, T. Yimlamai, and **S. K. Powers**. Trolox attenuates mechanical ventilation-induced contractile dysfunction and proteolysis in the rat diaphragm. American Journal of Respiratory and Critical Care Medicine. 170: 1179-1184, 2004.

Shanely, R. A., D. Van Gammeren, K. C. DeRuisseau, A. M. Zergeroglu, M. J. McKenzie, K. E. Yarasheski, and **S. K. Powers**. Mechanical ventilation depresses protein synthesis in the rat diaphragm. American Journal of Respiratory and Critical Care Medicine. 170:994-999, 2004.

Powers, S., J. Quindry, K. DeRuisseau, and K. Hamilton. Exercise and dietary antioxidants. Journal of Sports Sciences. 22: 81-94, 2004.

Powers, S. J. Quindry, and K. Hamilton. Aging, exercise, and Cardioprotection. Annals of the New York Academy of Sciences. 1019:462-470, 2004.

Lennon, S., J.C. Quindry, K. L. Hamilton, J. P. French, J. Hughes, J. L. Mehta, and **S. K. Powers**. Elevated MnSOD is not required for exercise-induced cardioprotection against myocardial stunning. American Journal of Physiology. 287:H975-980, 2004.

Hamilton K., J. C. Quindry, J. P. French, J. Staib, J. Hughes, J. L. Mehta, and **S. K. Powers**. MnSOD antisense oligonucleotides attenuate exercise-induced protection against arrhythmias during ischemia-reperfusion. Free Radical Biology and Medicine. 37:1360-1368, 2004.

Lennon, S. L., J. C. Quindry, J. French, S. Kim, J. L. Mehta, and **S. K. Powers**. Exercise and myocardial tolerance to ischemia-reperfusion. Acta Physiologica Scandanavica. 182:161-169, 2004.

Lennon, S. J. Quindry, K. L. Hamilton, J. French, J. Staib, J. L. Mehta, and **S. K. Powers**. Loss of exercise-induced cardioprotection following cessation of exercise. Journal of Applied Physiology. 96:1299-1305, 2004.

Shanely, R., J. Coombes, A. M. Zergeroglu, A. Webb, and **S. K. Powers**. Short-term mechanical ventilation enhances diaphragmatic fatigue resistance but impairs force production. Chest. 123:195-201, 2003.

Eason, J., **S. Dodd**, and **S. Powers**. Use of anabolic steroids to attenuate the effects of glucocorticoids on the rat diaphragm. Physical Therapy. 83: 29-36, 2003.

Hamilton, K. Staib, J., Phillips, T., Hess, A., Lennon, S. and **Powers, S. K.** Exercise, Antioxidants, and HSP72: Protection Against Myocardial Ischemia-Reperfusion. Free Radical Biology and Medicine. 34:800-809, 2003.

Demirel, H.A., K. Hamilton, R. A. Shanely, N. Tumer, M.J. Koroly, and **S. K. Powers**. Age and attenuation of exercise-induced myocardial HSP72 accumulation. American Journal of Physiology. 285:H1609-H1615, 2003.

Zergeroglu, M., M. McKenzie, A. Shanely, D. Van Gammeren K. DeRuisseau, and **S. K. Powers**. Mechanical ventilation-induced oxidative stress in the diaphragm. Journal of Applied Physiology. 95:1116-1124, 2003.

Criswell, D., R. A. Shanely, J. Betters, M. McKenzie, J. Sellman, D. Van Gammeren, and **S. K. Powers**. Cumulative effects of aging and mechanical ventilation on in vitro diaphragm function. Chest. 124:2304-2308, 2003.

Smith, W.N., A. Dirks, T. Sugiura, S. Muller, P. Scarpace, and **S. K. Powers**. Alterations of contractile force and mass in the senescent diaphragm with beta-2 agonist treatment. Journal of Applied Physiology. 92:941-948, 2002.

Fraites, T., M. Schleissing, R. A. Shanely, G. Walter, D. Cloutier, I. Zolotukhin, D. Pauly, N. Raben, P. Plotz, **S. K. Powers**, P. Kessler, and **B. Byrne**. Correction of the enzymatic and functional deficits in a model of Pompe disease using adeno-associated virus vectors. Molecular Therapy. 5:1-8, 2002.

Powers, S. K., R. A. Shanely, J. Coombes, T. Koesterer, M. McKenzie, D. Van Gammeren, M. Cicale, and S. Dodd. Mechanical ventilation results in progressive contractile dysfunction in the diaphragm. Journal of Applied Physiology. 92:1851-1858, 2002.

Staib, J., S. Swoap, and **S. K. Powers**. Diaphragm contractile dysfunction in MyoD gene inactivated mice. American Journal of Physiology. 268:R583-R590, 2002.

Vincent, H., R.A. Shanely, D.J. Stewart, H.A. Demirel, K.L. Hamilton, A.D. Ray, C. Michlin, G. A. Farkas, and **S.K. Powers**. Adaptation of upper airway muscles to chronic endurance exercise. American Journal of Respiratory and Critical Care Medicine. 166:287-293, 2002.

Coombes, J., B. Rowell, S. Dodd, H. Demirel, H. Naito, R. Shanely, and **S. K. Powers**. Effects of vitamin E deficiency on fatigue and muscle contractile properties. European Journal of Applied Physiology. 87:273-277, 2002.

Powers, S. and R. Andrew Shanely. Exercise-induced changes in diaphragmatic antioxidant and bioenergetic capacity. Exercise and Sport Science Reviews.30: 69-74, 2002.

Powers, S., S. Lennon, J. Quindry, and J. L. Mehta. Exercise and cardioprotection. Current Opinion in Cardiology. 17:495-502, 2002.

Shanely, R. A., M. Zergeroglu, S. Lennon, T. Sugiura, T. Yimlamai, S. Dodd, D. Enns, A. Belcastro, and **S. K. Powers**. Mechanical ventilation-induced diaphragmatic atrophy is associated with oxidative injury and increased proteolytic activity. American Journal of Respiratory and Critical Care Medicine. 166:1369-1374, 2002.

Koesterer, T., S. Dodd, **S. K. Powers**. Increased antioxidant capacity does not attenuate muscle atrophy caused by unweighting. Journal of Applied Physiology. 93:1959-1965, 2002.

Coombes, J., **S. K. Powers**, K. Hamilton, H. A. Demirel, R.A. Shanely, M. A. Zergeroglu, C. K.Sen, L. Packer and L. Ji. Effects of vitamin E and alpha-lipoic acid on skeletal muscle contractile properties. Journal of Applied Physiology. 90: 1424-1430, 2001.

Powers, S., H. Demirel, and M. Locke. Exercise, heat shock proteins, and myocardial protection from I-R injury. Medicine and Science in Sports and Exercise. 33: 386-392, 2001.

Tumer, N., H. A. Demirel, L. Serova, E. Sabban, C. Broxson, and **S. K. Powers**. Gene expression of catecholamine biosynthetic enzymes following exercise: modulation by age. Neuroscience. 103: 703-711, 2001.

Vincent, H., **S. K. Powers**, A. Dirks, and P. Scarpace. Mechanism for obesity-induced increase in myocardial lipid peroxidation. International Journal of Obesity. 25:378-388, 2001.

Naito, H., **S.K. Powers**, and H. Demirel. Endurance exercise training increases heat shock protein in skeletal muscle of young and old rats. Medicine and Science in Sports and Exercise. 33:729-734, 2001.

Hamilton, K., **S. K. Powers**, T. Sugiura, S. Kim, S. Lennon, N. Tumer, and J. L. Mehta. Short-term exercise training can improve myocardial tolerance to ischemia-reperfusion without an elevation in heat shock proteins. American Journal of Physiology. 281:H1346-1352, 2001.

Demirel, H., **S. K. Powers**, M. A. Zergeroglu, R. A. Shanely, K. Hamilton, J. Coombes, and H. Naito. Short-term exercise improves myocardial tolerance to *in vivo* ischemia-reperfusion in the rat. Journal of Applied Physiology. 91: 2205-2212, 2001.

Vincent, H., **S. Powers**, D. Stewart, H. Demirel, R. Shanely, and H. Naito. Short-term exercise training improves diaphragmatic antioxidant capacity and endurance. European Journal of Applied Physiology. 81:67-74, 2000.

Naito, H., **S. Powers**, H. Demirel, T. Sugiura, S. L. Dodd, and J. Aoki. Heat stress attenuates skeletal muscle atrophy in hindlimb-unweighted rats. Journal of Applied Physiology. 88: 359-363, 2000.

Eason, J., S. Dodd, **S. Powers**, and A. D. Martin. Detrimental effects of short-term glucocorticoid use on the rat diaphragm. Physical Therapy. 80:160-167, 2000.

Fletcher, L., **S. Powers**, J. Coombes, H. Demirel, H. Vincent, and J. McLaughlin. Glucocorticoid-induced alterations in the rate of fatigue development in the rat costal diaphragm. Pharmacological Research. 42: 61-68, 2000.

Coombes, J., **S.K. Powers**, H. Demirel, J. Jessup, H. Vincent, K. Hamilton, H. Naito, R. A. Shanely, C. Sen, L. Packer, and L. Ji. Effect of combined supplementation with vitamin E and alpha-lipoic acid on myocardial performance during *in vivo* ischemia-reperfusion. Acta Physiologica Scandanavica. 169:261-269, 2000.

Coombes, J., **S.K. Powers**, K. Hamilton, H. A. Demirel, R.A. Shanely, M. A. Zergeroglu, C. K. Sen, L. Packer and L. Ji. Improved cardiac performance following ischemia in aged rats supplemented with vitamin E and alpha-lipoic acid. American Journal of Physiology. 279:R2149-R2155, 2000.

Coombes, J., **S. K. Powers**, H. Demirel, J. Jessup, K. Hamilton, H. Vincent, H. Naito, and R. A. Shanely. Vitamin E deficiency fails to affect myocardial performance during *in vivo* ischemia-reperfusion. International Journal of Vitamin and Nutrition Research. 70:293-300, 2000.

Vincent, H., **S. Powers**, H. Demirel, J. Coombes, and H. Naito. Exercise training protects against contraction-induced lipid peroxidation in the diaphragm. European Journal of Applied Physiology. 79: 268-273, 1999.

Demirel, H., **Powers, S.**, H. Naito, M. Hughes, and J. Coombes. Exercise-induced alterations in skeletal muscle myosin heavy chain phenotype: dose-response relationship. Journal of Applied Physiology. 86: 1002-1008, 1999.

Powers, S. and K. Hamilton. Antioxidants and exercise. Clinics in Sports Medicine. 18:525-536, 1999.

Powers, S. and S. Lennon. Analysis of cellular responses to free radicals: focus on exercise and skeletal muscle. Proceedings of the Nutrition Society. 58: 1025-1033, 1999.

Powers, S., L. Ji, and C. Leeuwenburgh. Exercise training-induced alterations in skeletal muscle antioxidant capacity: a brief review. Medicine and Science in Sports and Exercise. 31:987-997, 1999.

Vrabas, I., S. L. Dodd, **S. K. Powers**, M. Hughes, J. Coombes, L. Fletcher, H. Demirel, and M. B. Reid. Endurance Exercise Training Improves Diaphragmatic Endurance *in vitro*. Medicine and Science in Sports and Exercise. 31: 1605-1612, 1999.

Demirel, H., **S. Powers**, H. Naito, and N. Tumer. The effects of exercise duration on adrenal HSP 72/73 induction in rats. Acta Physiologica Scandanavica. 167: 227-231, 1999.

Demirel, H., **S. Powers**, C. Caillaud, J. Coombes, L. Fletcher, I. Vrabas, H. Naito, J. Jessup, and L. Ji. Exercise training reduces myocardial lipid peroxidation following short-term ischemia-reperfusion. Medicine and Science in Sports and Exercise. 30:1211-1216, 1998.

Lawler, J. and **S. Powers**. Oxidative stress, antioxidant status, and contracting diaphragm. Canadian Journal of Applied Physiology. 23: 23-55, 1998.

Powers, S., H. Demirel, H. Vincent, J. Coombes, H. Naito, K. Ward, R. Shanely, and J. Jessup. Exercise training improves myocardial tolerance to in vivo ischemia-reperfusion in the rat. American Journal of Physiology. 275: R1468-R1477, 1998.

Vincent, H., **S. Powers**, D. Stewart, R. A. Shanely, H. Demirel, and H. Naito. Obesity is associated with increased myocardial oxidative stress. International Journal of Obesity. 23: 67-74, 1998.

Criswell, D., **S. Powers**, R. Herb, and S. Dodd. Mechanisms of specific force deficit in the senescent rat diaphragm. Respiration Physiology. 149-155, 1997.

Hodge, K., **S. K. Powers**, J. Coombes, L. Fletcher, H. Demirel, S. Dodd, and D. Martin. Bioenergetic characteristics of the costal and crural diaphragm in mammals. Respiration Physiology. 109: 149-154, 1997.

Powers, S., H. Demirel, J. Coombes, L. Fletcher, C. Calliaud, I. Vrabas, and D. Prezant. Myosin phenotype and bioenergetic characteristics of rat respiratory muscle. Medicine and Science in Sports and Exercise. 29: 1573-1579, 1997.

Poole, D., W. Sexton, G. Farkas, **S. Powers**, and M. Reid. Diaphragm structure and function in health and disease. Medicine and Science in Sports and Exercise. 29:738-754, 1997.

Powers, S., J. Coombes, and H. Demirel. Exercise training-induced changes in respiratory muscles. Sports Medicine. 24: 120-131, 1997.

Powers, S., D. Criswell, R. Her, H. Demirel, and S. Dodd. Age-related increases in diaphragmatic maximal shortening velocity. Journal of Applied Physiology. 80: 445-451, 1996.

Herb, R., **S. Powers**, and D. Criswell. Hypothyroidism alters diaphragmatic contractile properties and myosin phenotype. Journal of Applied Physiology. 80:2163-2170, 1996.

Dodd, S., **S. Powers**, I. Vrabas, D. Criswell, S. Stetson, and R. Hussain. Effects of clenbuterol on contractile and biochemical properties of skeletal muscle. Medicine and Science in Sports and Exercise. 28:669-676, 1996.

Norenberg, K., R. Herb, **S. Dodd**, and **S. K. Powers**. The effects of hypothyroidism on single fibers of the rat soleus muscle. Canadian Journal of Physiology and Pharmacology. 74: 3-8, 1996.

Powers, S., G. Farkas, H. Demirel, J. Coombes, L. Fletcher, M. Hughes, K. Hodge, S. Dodd, and E. Schlenker. Effects of aging and obesity on respiratory muscle phenotype in Zucker rats. Journal of

Applied Physiology. 81: 1347-1354, 1996.

Grace, M., L. Fletcher, **S. Powers**, M. Hughes, and J. Coombes. A comparison of maximal bioenergetic enzyme activities obtained with commonly used homogenization techniques. Journal of Sports Medicine and Physical Fitness. 36: 281-286, 1996.

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Powers, S. and S. Dodd. Total Fitness and Wellness. Benjamin Cummings. San Francisco. Fifth Edition. 2009.

Powers, S. and S. Dodd. Total Fitness and Wellness; Brief Edition. Benjamin Cummings. Third Edition. San Francisco. 2009.

Brown, S., R. Byrd, and **S. Powers**. Experiences in Work Physiology. Burgess Publishing Company, Edina, MN. Second Edition. 1997.

Chapters in Books

1. **Powers, S.** Children and Exercise. In: Motor Development in Preschool and Elementary Children. Burgess Publishing. 1984, pp. 27-47, (Ed.) J. Thomas.

2. Dempsey, J., **S. Powers**, and N. Gledhill. Demand vs. capacity in the pulmonary system response to exercise. In: Exercise, Fitness, and Health: A consensus on current knowledge . (C. Bouchard, R. Shepard, T. Stephens, J. Sutton, and B. McPherson, Eds.) Human Kinetics, Champaign, 1990.

3. Lowenthal, D., **S. Powers**, and Z. Kendrick. The effects of exercise training on skeletal muscle in humans and aging Fischer 344 rats. In: Musculoskeletal soft-tissue aging: impact on mobility. (J. Buckwalter, V. Goldberg, and S. L-Y Woo, Eds.). American College of Orthopaedic Surgeons. pp 201-207, 1993.

4. Dempsey, J., L. Adams, D. Ainsworth, R. Fregosi, C. Gallagher, A. Guz, B. Johnson, and **S. Powers**. Airway, lung, and respiratory muscle function during exercise. In: Handbook of Physiology: Exercise Physiology. Cambridge Press, London. pp. 448-514, 1996.

5. **Powers, S.**, J. Lawler, and H. Vincent. The diaphragm and oxidative stress. In: Oxidative stress in skeletal muscle. (A. Reznick, Ed.) Birkhauser Verlag. Basel. pp. 223-238, 1998.

6. **Powers, S.** Fundamentals of Exercise Metabolism. In: Resource manual for guidelines for exercise testing and prescription . Lea & Febiger. (Ed.L. Durstine et al.) pp. 59-65. Third Edition. 1998.

7. Hamilton, K., J. Coombes, H. Demirel, and **S. Powers**. Physiological adaptations to exercise training. In: Basic and Applied Sciences for Sports Medicine. (R. Maughn, Ed.) pp. 90- 122, 1999.

8. **Powers, S.** and C. Sen. Physiological antioxidants and Exercise Training. In: Exercise and Oxygen Toxicity. (C. Sen and L. Packer, Eds.) Elsevier Press, Amsterdam. pp. 221-241, 2000.

9. Hamilton, K. and **S. K. Powers**. Heat shock proteins and reactive oxygen species. In: Exercise and Stress Response. CRC Press. Boca Raton, Florida. pp. 123-136, 2002.

10. **Powers, S. K.**, R. Shanely, and M. Cicale. Exercise and rehabilitation from chronic obstructive pulmonary disease. In: Exercise and Disease: Prevention through training. Z. Radak (Ed). Meyer and Meyer Sport. Oxford, UK. 2005.
11. Quindry, J. and **S. Powers**. Aging, exercise, antioxidants, and cardioprotection. In: Oxidative stress, exercise and aging. Imperial College Press. London, England. pp. 125-144, 2006.
12. **Powers, S.K.**, S. Levine, D. Falk, and Andreas Kavazis. ROS and diaphragmatic weakness following mechanical ventilation. In: Free Radicals in Biology and Medicine. C. Gutierrez and C. Leeuwenburgh (Eds). Research Signpost, Kerala, India. Pp. 233- 249, 2008.

Professional Affiliations

American College of Sports Medicine
American Thoracic Society
American Physiological Society
Southeastern American College of Sports Medicine
Oxygen Society

Elected Professional Offices

Member, Executive Committee, Southeastern American College of Sports Medicine, 1982-1983
President, Southeastern Chapter of the American College of Sports Medicine, 1986
Vice-President for Research (1981-1982), Louisiana Association for Health and Physical Education
Board of Trustees, American College of Sports Medicine, 1991-1994
American College of Sports Medicine, numerous committees, 1988-present
Vice-President, American College of Sports Medicine, 1997-1999
Council Member, Environmental and Exercise Physiology Section, American Physiological Society, 2001-2004
Chair, Exercise and Environmental Section, American Physiological Society, 2010-2013

Participation as Journal Editor and Editorial Boards

Associate Editor, American Journal of Physiology; Regulatory, Integrative, and Comparative Physiology.

2008-present

Associate Editor, Medicine and Science in Sports and Exercise

1990-1994

Section Editor-Physiology, Research Quarterly for Exercise and Sport

1991-1994

Editorial Board, International Journal of Sports Nutrition

1990-present

Editorial Advisory Board, Journal of Sports Science (London)

1991- present

Editorial Board, Journal of Applied Physiology

1993- present

Editorial Board, Medicine and Science in Sports and Exercise

1994-2006

Editorial Board, International Journal of Sports Medicine
1994-present

Participation as Journal Referee

Acta Physiologica Scandanavica
American Journal of Physiology
American Review of Respiratory Disease and Critical Care Medicine
Canadian Journal of Physiology and Pharmacology
Canadian Journal of Applied Physiology
Circulation
Comparative Biochemistry and Physiology
European Journal of Applied Physiology
European Journal of Physiology (Pflugers Archives)
FASEB Journal
International Journal of Sports Medicine
International Journal of Sports Nutrition
Journal of Physiology (London)
Journal of Applied Physiology
Journal of Clinical Investigation
Journal of Sports Science
Medicine and Science in Sports and Exercise
Muscle and Nerve
Research Quarterly for Exercise and Sport
Sports Medicine

Service on grant study sections

NASA, Muscle Biology study section, January 1996
NASA, Countermeasures study section, June 1996
American Heart Association-Florida, March 1997
American Heart Association-Florida, March 1999
National Institutes of Health. Respiratory and Applied Physiology-special emphasis study section.
November 1999
National Institutes of Health. Respiratory and Applied Physiology-special emphasis study section. June
2000
National Institutes of Health. Geriatric and Rehabilitation Medicine Study section, ad hoc reviewer,
February 2001
American College of Sports Medicine Research Study Section, March 2002.
National Institutes of Health. Skeletal Muscle Biology Study section, ad hoc reviewer, February 2003
National Institutes of Health. Skeletal Muscle Biology (Special emphasis) Study section, March 2007
National Institutes of Health. Program project review (Special emphasis) Study section, August, 2007
National Institutes of Health. Special Emphasis study section, March, 2008.
National Institutes of Health. Program project review (Special emphasis Study section), April, 2008
National Institutes of Health. Skeletal Muscle Biology (Special emphasis Study section), December 2008

Research Presentations at professional meetings

Since 1981, I have presented 207 research presentations at universities and regional, national, or international meetings (e.g. Experimental Biology, American Thoracic Society, etc.).

Funded extramural Grant Support: University of Florida, 1990-to-date

(Principal Investigator) Ross Laboratories, Inc. 1990-91. Grant awarded to study the influence of various fluid replacement strategies on shifts in plasma volume and blood electrolyte concentrations during prolonged exercise (\$46,844 direct costs)

(Principal Investigator) American Lung Association-Florida affiliate (1990-91) Respiratory muscle adaptation: effects of aging and exercise (\$ 49,028 direct costs)

(Principal Investigator) American Lung Association -Florida affiliate (1991-92) Glucocorticoid-induced diaphragm myopathy: cellular alterations and the role of exercise as an antagonist (\$40, 769 direct costs)

(Principal Investigator) American Lung Association-Florida affiliate (1993-95) Hypothyroid-induced diaphragmatic contractile dysfunction (\$46,881 direct costs)

(Principal Investigator) American Heart Association-Florida affiliate (1994-1996) Exercise-training and ischemia-reperfusion injury in the heart (\$78,097 direct costs)

(Principal Investigator) American Heart Association-Florida affiliate (1996-1998) Antioxidants and ischemia-reperfusion injury in the heart (\$97,668 direct costs)

(Principal Investigator) American Lung Association-Florida affiliate (1997-1999) Mechanical ventilation and diaphragmatic contractile dysfunction (\$58,413 direct costs)

(Principal Investigator) National Institutes of Health (NIA) (1997-1999) Beta-2 agonist restoration of muscle mass in senescent rats (\$62,413 direct + indirect costs)

(Principal Investigator) United States Air Force (1998-1999) Comparison of proposed submaximal aerobic fitness evaluations (\$102,949 direct + indirect costs)

(Principal Investigator) American Heart Association-Florida affiliate (1998-2001) Protective strategies against myocardial ischemia-reperfusion injury (\$109,388 direct + indirect costs)

(Co-Principal Investigator with J. Mehta) Department of Defense (1999-2002) Aging, Exercise, and Heat Shock Proteins (\$370,472 direct costs)

(Co-Investigator with C. Leeuwenburgh, P.I.) National Institutes of Health (NIA) (2000-2005) Molecular mechanisms of skeletal muscle aging. (\$1,434,221, direct + indirect costs).

(Co-Investigator with B. Byrne) National Institutes of Health. Program Project Grant (2000-2005) Transduction of Hepatocytes with Recombinant AAV for Correction of Genetic and Metabolic Abnormalities (\$5,377,369 direct + indirect costs)

(Principal Investigator) Florida Department of Health: Biomedical Research Program (project BM007) (2001-2004) Exercise and myocardial protection against I-R injury (\$355,525 direct + indirect costs).

(Principal Investigator) National Institutes of Health (NHLBI -R01-HL62361) (2001-2006) Mechanical ventilation and respiratory muscles. (\$1,268,750 direct + indirect cost).

(Principal Investigator) National Institutes of Health. (NHLBI -R01-HL6236) (2003-2007) Exercise, antioxidants, and cardioprotection (\$1,317,512 direct + indirect cost).

(Co-Investigator with C. Leeuwenburgh, P.I.) National Institutes of Health (NIA) (2003-2008) Apoptosis and lifelong caloric restriction. (\$1,622,033 direct + indirect costs).

(Principal Investigator) National Institutes of Health. (NHLBI-R01-HL072789) (2005-2010) Mechanical ventilation and oxidative stress in the diaphragm (\$1,280,409 direct + indirect cost)

(Principal Investigator) National Institutes of Health. (R01HL087839) (2009-2013) Mechanical ventilation, oxidative stress and diaphragmatic atrophy (\$1,460,000 direct + indirect cost).

Grants currently in review

(Principal Investigator) National Institutes of Health. (2010-2015) Mechanical ventilation and oxidative stress in the diaphragm ((\$1,809,510 direct + indirect cost). Competitive renewal-in review

(Principal Investigator) American Heart Association (2009-2010) Mechanical ventilation-induced diaphragmatic weakness ((\$165, 000 direct + indirect cost). In review