Curriculum Vitae

John Michael Lawler

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**EDUCATIONAL BACKGROUND**

University of Florida PhD - Exercise Physiology

minor: Medical Physiology, 1991

Louisiana State University MS - Exercise Physiology, 1987

Duke University BSE - Biomedical Engineering, 1981

**PROFESSIONAL BACKGROUND**

Professor Director: Redox Biology & Cell Signaling Lab.

Dept. of Health and Kinesiology

Texas A&M University, 2006 -

Director: Exercise Biomechanics Teaching Laboratory

Member Cardiovascular Research Institute (CVRI)

2012 -

Professor Graduate Faculty of Nutrition & Food Science

Texas A&M University, 2008 -

Department of Biomedical Engineering

Texas A&M University, 2009 - 2012

Associate Professor Dept. of Health and Kinesiology

Texas A&M University, 1997 - 2006

Assistant Professor Dept. of Health and Kinesiology

Texas A&M University, 1991 - 1997

Research Fellow University of Florida

Gainesville, FL, 1989 - 1991

Teaching and Research Asst Louisiana State University

Engineer: Applied Baton Rouge, LA, 1984 - 1988

Physiology Laboratory

Biomedical Engineering Pitt County Memorial Hospital;

Technician East Carolina Medical School, 1981 - 1983

**HONORS**

Robert B. Armstrong Research Award Texas A&M University, 2018

Fellow (FACSM)American College of Sports Medicine,

2000-

Edward Livingston Trudeau Scholar American Lung Association, 1995

Graduate Research Award Dept. of Exercise and Sport Sciences,

University of Florida

1990 - 1991

**RESEARCH INTERESTS**

My areas of current and future research interest include:

1. Molecular and biochemical mechanisms by which oxidative stress regulates mechanotransduction, including nNOS translocation in muscle myopathies (disuse, Duchenne muscular dystrophy, T2D, aging)

2. Redox regulation of inflammation, damage, and impaired repair mechanisms in respiratory muscles with Duchenne Muscular Dystrophy.

3. Exercise protection against oxidative stress, fibrosis, and remodeling in the aging heart.

4. Mechanisms by which long-term exercise training protects alterations in oxidative stress, mechanotransduction, and satellite cells in aging skeletal muscle.

**FUNDED GRANTS/FELLOWSHIPS**

Texas A&M University Office of the President T3 John M. Lawler (PI), Shaodong Guo (CoI, Thomas Kent (CoI) Triad (T3) grant “Novel Regulation in Assembly of the NADPH oxidase-2 (Nox2) Complex During Spaceflight in Skeletal Muscle: Short-circuiting Muscle Fiber Atrophy.” 2019, $30,000.

NASA (ROSBio 2018) John Lawler (PI), Jim Fluckey (CoI) “Upstream Regulation of Nox2 and Skeletal Muscle Atrophy During Spaceflight.” 2018-2021, $750.000.

**College of Education & Human Development – Catapult Grant** JM Lawler, C Wu, L Kuo, S Guo, J Fluckey. “Novel Approaches to Combatting Disuse Skeletal Muscle Atrophy: Breakthroughs in Mechano- and Nutrient-sensing.” 2018-2019, $30,000.

Huffines Institute for Sports Medicine – Faculty Seed Grant John Lawler (PI), Peter Nghiem (CoI), Joe Kornegay (CoI), Mari Muthuchamy (CoI). “Cyclophilin A Regulation of Nox2 Signaling in the Dystrophic Heart and Diaphragm,” 2017-2018, $7500.

**NASA HERO (Human Exploration Research)** **16-16Flag1\_2-0043** (NNX80NSSC17K0118) JM Lawler (PI), JF Ford (CoI), N Turner (CoI). Attenuation of Space Radiation-induced Pro-oxidant and Fibrotic Signaling in the Heart by Nutritional and Genetic Interventions: Adventures in Tissue Sharing. 2017-2019, $150,000.

**Mariana Janini Gomes** - Visiting International Research Fellow, FAPESP Program, Botucatu School of Medicine, São Paulo State University, Botucatu, BRAZIL, 2017. $25,000

**Sydney & JL Huffines Institute Seed Grant** John M. Lawler (PI) “Nox2 and Membrane Repair Protein Regulation in Unloading-induced Muscle Atrophy.” 2015-2016, $7500.

**College of Education & Human Development – Transforming Lives Research Grant** JM Lawler, J Kornegay “The Role of Nox2 and Loss of nNOS-mu in Aging Skeletal Muscle: Integrative and Translational Solutions.” 2015-2016, $30,000.

Office of the Vice President for Research (Texas A&M University) – PESCA

Program. John M. Lawler (PI), Joe Kornegay, CoI, JT Lightfoot (CoI), W. Porter (CoI) “Nox2 Crosstalk and Regulation in Diaphragm Muscle with Dystrophin Deficiency.” 2015-2017, $25,000.

**Vinicius Guzzoni** – Visiting International Research Scholar CAPES Program, UFSCAR, São Carlos, BRAZIL, 2014-2015, $25,000

**National Space Biomedical Research Institute (NSBRI),** **NASA** PF03504 **NNH11ZTT002N First Award Program (Post-Doctoral Fellowship)** John M. Lawler (PI), James Kuczmarski (Mentee),” Developing Novel, Targeted Countermeasures to Reduce Oxidative Stress and Skeletal Muscle Atrophy During Microgravity” 2014-2016. $102,000.

**Department of Defense SBIR Program** Jinseong Kim (PI), John M. Lawler (CoI) “Detection of Urinary Biomarkers for Assessment of Oxidative Status.” 2012-2013. $100,000.

**NASA (Space Biology Program)** NASA NNX13AE45G John Lawler (PI), Jim Fluckey (CoI) **“**Redox Regulation of nNOS Translocation and Muscle Atrophy During Mechanical Unloading” 2012-2018. $400,000.

**Sydney & JL** **Huffines Institute – Seed Grant** John Lawler (PI) “Redox Regulation of nNOS During Disuse” 2011-2012, $7500.

**Office of the Vice President for Research (Texas A&M University)** – **Scholarly & Creative Products Program.** John M. Lawler (PI), Guoyao Wu, CoI.“Skeletal Muscle Atrophy During Mechanical Unloading as a Unique Muscular Dystrophy: Altering the Subsarcolemmal Environment.” 2011-2013, $18,000.

Sydney & JL Huffines Institute Seed Grant John M. Lawler (PI) “Mechanical Unloading with Disuse Causes a Unique Muscular Dystrophy: Regulation of the Dystroglycan Complex and NF-kappaB Activation by Oxidative Stress” 2009-2010, $5500.

American Heart Association - South Central Affiliate John M. Lawler (PI) “Regulation of MnSOD by Exercise Training Attenuates Remodeling and Apoptosis in the Aging Heart.” 2008-2011, $140,000.

**Sydney & JL Huffines Institute Seed Grant** “Targeting Potential Upstream Mechanisms By Which Exercise Protects Against Age-induced Fibrosis and Matrix Metalloproteinase Dysregulation in the Heart” 2008-2009, $5000.

**NIH (NIAMS)** (AR054084**)** John M. Lawler (PI). “Regulation of Oxidative Stress in the *mdx* Diaphragm.” 2006-2011, $150,000.

**NASA NSBRI (National Space Biomedical Research Institute).** Nancy Turner (Co-PI) &

Joanne Lupton (Co-PI), Jim Fluckey (CoI), John Lawler (Co-I), Steve Crouse (CoI), Sue Bloomfield

(CoI), 6 other CoIs. “Ph.D. training program in critical areas of space life sciences.” 2006-2017,

$1,200,000.

**American Heart Association – Texas Affiliate** John M. Lawler (PI). (AHA 0555064Y) “Exercise training protects against pro-apoptotic signaling in the aging heart.” 2005-2008, $124,000.

**National Science Foundation** Markus Horning (PI), John M. Lawler (Co-PI). (ANT 0649609) “Aging in Weddell Seals: Proximate Mechanisms of Age-Related Changes in Adaptations to Breath Hold Hunting in an Extreme Environment.” 2005-2010, $449,358.

**Office of the Vice President for Research (Texas A&M University)** – **Proposal Planning Grant.** John M. Lawler (PI).“Regular Exercise Protects Against Cell Loss and Apoptosis in the Aging Heart.” 2005-2006, $30,000.

**Office of the Vice-President for Research – Texas A&M University** Travel Award – National Institutes of Health, 2004, $1300.

**Muscular Dystrophy Association** John M. Lawler, (PI). David S. Criswell; (CoI) “Oxidative Stress and Inflammatory Cell Signaling in the Diaphragm and Limb Muscles of *mdx* Mice” 2003-2005, $75,000.

**American College of Sports Medicine** Wook Song (Graduate Advisee) – 2002 ACSM Foundation Research Grant. “Exercise Training Reverses Age-induced iNOS Upregulation.” $5000.

**American College of Sports Medicine** Wook Song (Graduate Advisee) - 2002

NASA Space Physiology Research Grant. “Oxidative Stress During Hindlimb Suspension.”

$2500.

**College of Education (Texas A&M University)** – Instructional Enhancement Equipment Program (PI). Integrated Forceplate and EMG System in Biomechanics” 2001, $13,773.

**Office of the Vice President for Research and Associate Provost for Graduate Studies (Texas A&M University)** – **Minigrant** John M. Lawler (P.I.).“Will Exercise Training Improve Antioxidant Capacity in Skeletal Muscle of Pigs with Coronary Occlusion.” 2000-2001, $1,500.

**Office of the Vice President for Research and Associate Provost for**

**Graduate Studies (Texas A&M University)** – Program to Enhance Scholarly and Creative Activities (P.I.).“Oxidative Stress and Alterations in Cell Signaling Pathways in Aging Skeletal Muscle: Analysis Using “Gene Chip” Technology.” 2001-2002, $ 7,490.

**Travel Award - College of Education (PI),** 2001 $ 750

**College of Education (Texas A&M University)** - Seed Grant (P.I.). "Conjugated Linoleic Acid: Antidote for Oxidative Stress in the Heart” 2000, $ 2592.

**Office of the Vice President for Research and Associate Provost for**

**Graduate Studies (Texas A&M University)** – Program to Enhance Scholarly and Creative

Activities (P.I.).“Impact of Aging on Gene Expression of Neuronal Nitric Oxide Synthase in Rat Skeletal Muscle.” 2000-2001, $ 7,486.

**Office of University Research (Texas A&M University)** - Minigrant.(P.I.).

"Depression of diaphragm muscle oxygen consumption by peroxynitrite." 1999, $1,494

**College of Education (Texas A&M University)** - Seed Grant (P.I.). "Just say NO: Inhibition of antioxidant enzymes in diaphragm muscle by nitric oxide.” 1999, $4000.

**Office of University Research (Texas A&M University)** - Minigrant.(P.I.).

"Influence of nitric oxide on calcium release and contractions in the diaphragm." 1998, $1,440.

**College of Education (Texas A&M University)** - Seed Grant (P.I.). "Production of reactive oxygen species in the aging diaphragm." 1998, $4000.

**American Lung Association** - (P.I.). "Oxidative stress and diaphragm contractility." 1996-1997, $22,777 (Renewal).

**American Lung Association** - (P.I.). "Oxidative stress and diaphragm contractility." 1995-1996, $20,919 (Score: 1st percentile).

**Office of University Research (Texas A&M University)** - Program to Enhance Scholarly and Creative Activities (P.I.). "Does the hydroxyl radical contribute to depression in contractility of the diaphragm induced by xanthine oxidase?" 1994, $7475.

**Office of University Research (Texas A&M University)** - Minigrant. (P.I.). "Effect of desferrioxamine on XO-induced changes in diaphragmatic K+ contractures." 1993-1994, $800.

**College of Education (Texas A&M University)** - Incentive grant (P.I.). "Is free radical-induced fatigue in the diaphragm enhanced with aging?" 1993, $1500.00.

**Office of University Research (Texas A&M University)** - Minigrant.(P.I.). "Effect of free radical stress on K+- induced contractures in the diaphragm." 1992-1993, $800.00.

**Center for Teaching Excellence (Texas A&M University)** - Incentive Grant (P.I.). "Software and Hardware Development for Undergraduate Analysis of Movement Class (KINE 426)." 1992-1993, $1000.00.

**Office of University Research (Texas A&M University)** - Minigrant.(P.I.). "Interaction of pH and free radical stress on fatigue in the diaphragm." 1992, $500.00

**University of Florida** Grinter Research Fellowship, 1990 - 1991, $9,500

**University of Florida** Graduate Council Fellowship, 1989, $4,500

**Louisiana State University** Lillian Oleson Scholarship, 1986 - 1988, $15,000

**PENDING/RECENT GRANTS**

American Federation for Aging Research (Breakthroughs in Gerontology) John M. Lawler (PI), Stanley Froehner (CoI). “Mitigating Sarcopenia: Failure of nNOSµ and Mechanotransduction in Skeletal Muscle from Physical Inactivity Combined with Aging” 2019 – 2022, $300,000.

NASA (HERO – Space Radiobiology) “Targeted Antioxidant Medical Countermeasures to Mitigate Mixed Radiation-induced Risk of CVD Pathology, Breast Cancer, and Neuropathology in Astronaut-age Rodents” JM Lawler (PI), J Ford (CoI), WH Griffith, (CoI), WW Porter (CoI), C Woodman (CoI) $1,779,603, 2018-2022.

American Heart Association “Cyclophilin A and Acid Sphingomyelinase as Novel Regulators of Nox2 Assembly in the Dystrophic Heart.” 2018-2021, $300,000.

Muscular Dystrophy Association – Research Grant. “Novel Regulators in Assembly of Nox2 in the Dystrophic Diaphragm: Proof of Concept.” JM Lawler (PI), J Kornegay (CoI), P Nghiem (CoI), $300,000, 2018-2020.

Texas A&M University Office of the President. X-Grant. Protecting Against Sarcopenia with Gene Therapy and Nutritional Supplements. JM Lawler (PI), Stanley Froehner, 10 other CoIs. $500,000, 2018-2020.

**NASA (Translational Research Institute)** JM Lawler (PI), N Deutz (CoI), JD Fluckey (CoI), P Nghiem (CoI). “Preserving Skeletal Muscle Morphology in Ground-based Microgravity with FDA Approved Interventions: Targeting Oxidative Stress, Astronaut Age, and Synergism with Exercise. 2018-2021.

NASA (HERO – Space Radiobiology) “Radiobiology of Cardiovascular Disease when Space Radiation and Microgravity are Combined: Targeting Secondary Oxidative Stress and NADPH Oxidase-2 Signaling in Astronaut-age Rodents.” JM Lawler (PI), J Ford (CoI), M Muthuchamy (CoI), C Woodman (CoI) JT Lightfoot (CoI). 2018-2021, $1,350,000.

**Muscular Dystrophy Association**. JM Lawler (PI) “Novel regulators in the Assembly of Nox2 in the Dystrophic Diaphragm Muscle” $300,000**.** 2018-2021.

American Diabetes Association “Flipping Type II Diabetes and Protein Storage:

Mechanisms of Skeletal Muscle Hypertrophy with Calorie Dense Food in Young Mice.” JM Lawler (PI), N Deutz (CoI), C Wu (CoI) $345,000, 2017-2020.

Duchenne Alliance – Preclinical Trials: “Targeted Antioxidant Interventions to Treat Respiratory and Limb Skeletal Muscle Pathology with Duchenne Muscular Dystrophy: Stage One - Preclinical Trials A” JM Lawler (PI), P Nghiem (CoI), J Kornegay (CoI), Nicolaas Deutz (CoI) 2017-2020, $805,747. (Pending)

**NASA (ROSES – Research Opportunities in Space Biology)** NNH16ZTT001N-GL Appendix A: GeneLab Innovation Awards for Translational Systems Biology and Informatics Research Using the GeneLab Data System. “Translating GeneLab Bedrest Experiments in Skeletal Muscle: Using Transcriptome Bioinformatics to Identify Linkages Between Protein Metabolism and Mechanotransduction.” $275,000, 2017-2019.

**PUBLICATIONS:** [H-index = 34 on SCOPUS; 4525 citations; H-index = 36 on Google Scholar, i10 = 67, 5064 citations, H-index = 33 on SCI]

Shimkus KL, Lee Y, Wiggs MP, Lima F, Macias BR, Shirazi-Fard Y, Greene ES, Jeff W. Hord JM1, Braby LA, Carroll CC, Lawler JM, Bloomfield SA, and Fluckey JD.. Combined effects of lunar gravity and heavy ion exposure on skeletal muscle. *In Preparation.*

Lawler, JM, JM Hord, JM Kuczmarski, V Guzzoni, Y Lee, M. Garcia, MS Lawler. Effect of

Nox2 inhibition on unloading-induced changes in rat soleus muscle morphology

and cell signaling. *Experimental Physiology*. *In Preparation.*

Lawler, JM, Y Lee, JM Hord, JH Kim, A Ramirez, SY Shin, and R. Botchlett. NADPH

oxidase and oxidative stress increase MMP-9 and dislocate nNOS and -syntrophin in the

diaphragm of *mdx* mice. *In Preparation.*

91. Allen, KN, JP Vasquez-Medina, JM Lawler, JA Mellish, M Horning, and AG Hindle. Muscular apoptosis but not oxidative stress increases with old age in a long-lived diver, the Weddell seal. *Journal of Experimental Biology.* *In Review.*

90. Hindle, A, JM Lawler, JA Mellish, and M Horning. Oxidative stress in wild caught shrews:

Do foraging adaptations confer benefits for muscle aging? *Journal of Comparative Physiology.*

*In Review.*

89*.* Hord, JM, MM Garcia, JM Kuczmarski, KR Farris, V. Guzzoni, Y Lee, MS

Lawler, JM Lawler. AT1 receptor blockade Nox2 signaling and skeletal muscle fiber atrophy during disuse. *Journal of Physiology.* *In Review.*

88. Lawler, JM, Guzzoni V, EE Garcia-Villatoro, JM Hord, JM Kuczmarski, JD Fluckey, S Talcott.

Effect of fish oil plus curcumin on skeletal muscle morphology in the C57 mouse.

*Nutrition Research*. [doi.org/10.1016/j.nutres.2018.12.013](https://doi.org/10.1016/j.nutres.2018.12.013)*,* 2018.

86. Wu CS, Q. Wei, DM Kim, M Balderas, G Wu, J Lawler, S Safe, S Devaraj, Z Chen,

and Y. Sun. Protective effects of ghrelin on fasting-induced muscle atrophy in aging mice.

*Journal of Gerontology*. 2018 Nov 8. doi: 10.1093/gerona/gly256

85. Kuczmarski JM, JM Hord, Y Lee, V Guzzoni, D Rodriguez, MS Lawler, EE Garcia-Villatoro, D Holly, P Ryan, K Falcon, M Garcia, JD Fluckey, JM Lawler. EUK-134 modulates anabolic signaling in the rat soleus after 7 days of hindlimb unloading. *Experimental Physiology.*  103: 545-558, 2018.

84. Guzzoni V, Marqueti RC, Durigan JL, Hernandes LR, Mekaro MS, Costa Santos TO,

Mecawi AS, Hord JM, Lawler JM, Davel APC, Selistre-de-Araújo, HS. Effects of high-intensity resistance training in the extracellular matrix and diastolic function in left ventricle of old male rats. *Journal of Applied Physiology.* 123: 655-663, 2017.

83.Hord, JM, Lawler JM. ROS and nNOS in the Regulation of Disuse-Induced

Skeletal Muscle Atrophy. *The Plasticity of Skeletal Muscle - From Molecular Mechanism to Clinical Applications*. 2016.

82. Hord, J., Y. Lee, R. Botchlett, J.H. Kim, JM Lawler. Lifelong exercise and mild caloric restriction against disruption of the dystrophin-glycoprotein complex (DGC) in skeletal muscle. *Experimental Gerontology.* 83:148-57, 2016. IF = 3.491

81. Lawler JM, D. Rodriguez, and JM Hord. Mitochondria in the Middle: Exercise

Preconditioning Protection of Striated Muscle. *Journal of Physiology*. 594: 5161-5183, 2016. IF = 4.898

80. Lee, Y., J. Hord, HB Kwak, JH Kim, and JM Lawler. Exercise Training Reduces Age-

Dependent Elevation of Angiotensin II Receptor Pathway and TGF-beta in the FBN Rat Heart. *Experimental Gerontology.* 70: 163-73. 2015. [PMID: 26239262] IF = 3.491

79. Kim, J.H., H.-B. Kwak, and J.M. Lawler. Lifelong wheel running and mild caloric

restriction attenuate nuclear Endo-G in rat plantaris muscle. *Experimental*

*Gerontology.* 69: 122-128, 2015*.* [PMID: 26055450]IF = 3.491

78. Lawler JM and JM Hord. “Redox Regulation of Protein Turnover During Unloading-

induced Atrophy.” CrossTalk Debate 20: The dominant mechanism causing disuse

muscle atrophy is decreased protein synthesis/proteolysis. *Invited Comment.*

*Journal of Physiology*, February 2015. IF = 4.898

77. Kwak, H,-B., Y, Lee, and J.-H. Kim, H. Van Remmen, A.G. Richardson, and JM

Lawler. MnSOD overexpression reduces fibrosis and pro-apoptotic signaling in the

aging mouse heart. *J Gerontology: Biological Sciences.* 70: 533-44, 2015. [PMID: 25016531] IF = 5.783

76. Lawler, J.M., M. Kunst, K. Joshi, J. Hord, Y. Lee, R. Botchlett, A. Ramirez, and D.A.

Martinez. EUK-134 ameliorates nNOSμ translocation and skeletal muscle fiber atrophy during

short-term mechanical unloading. *American Journal of Physiology.* 306: R470–R482, 2014.

[PMID: 24621789] IF = 3.631

75. Botchlett, R, JM Lawler, and G Wu. Arginine and citrulline in sports nutrition and

health. In *Nutrition and Enhanced Sports Performance: Recommendations for*

*Muscle Building.* D. Bagchi, S. Nair, and CK Sen (Eds) pp 439-446*,* 2013*.*

74. Kim, JH, LA Thompson, HB Kwak, JM Lawler. Contribution of oxidative stress to

pathology in diaphragm and limb muscles with dystrophin deficiency. *Neuromuscular*

*Disorders.* 34: 1-13, 2013. [PMID: 23104273]

# 73. Kim, J.-H. and J.M. Lawler. Amplification of pro-inflammatory phenotype, damage, and

# weakness by oxidative stress in the diaphragm of *mdx* mice. *Free Radical Biology*

# *& Medicine.* 52: 1597-1606, 2012*.* [PMID: 22330042] IF = 5.886

72. Lawler, J.M., H.B. Kwak, J.-H. Kim, Y. Lee, and J.M. Hord, and D.A. Martinez.

Biphasic stress-response in the rat soleus during reloading following hindlimb

unloading. *Medicine and Science in Sports & Exercise.* 44: 600-609, 2012*.* [PMID:

21486793]

71. Murray, I.V.J. and J.M. Lawler. Vascular dysfunction and glucose dyshomeostasis in

Alzheimer’s disease. *Experimental Biology & Medicine.* 236: 772-782, 2011*.* [PMID:

21680755]

# 70. Lawler, J.M. and A. Hindle. Living in a box or call of the wild? Revisiting lifetime inactivity and sarcopenia. *Antioxidants & Redox Signaling.* May 4 EPub, 2011. [PMID: 21486793]

69. Lawler, J.M. Redox amplification of pathology in respiratory and locomotor muscles with Duchenne muscular dystrophy. *Journal of Physiology.* 589: 2161-2170, 2011. [PMID: 21486793]

68. Kwak, H.B., J.-H. Kim, K. Joshi, A. Yeh, D.A. Martinez, and J.M. Lawler. Exercise

training reduces fibrosis and metalloproteinase dysregulation in the aging rat heart.

*FASEB Journal.* 25: 1106-1117, 2011.[PMID: 21148111]

67. Lawler, J.M., J.-H. Kim, W. Song, S. Demaree, and W.S. Barnes. Redox challenge alters skeletal muscle contractility reversibly: Effect of RyR and DHPR Ca2+ channel antagonists and agonists. *Free Radical Biology & Medicine.* 49: 1969-1977.2010. [PMID: 20920578]

66. Hindle, A.G., Lawler, J.M., Campbell, K.L., and M. Horning. Muscle aging and

oxidative stress in wild-caught shrews. *Comparative Biochemistry and Physiology, Part B,* 155: 427-434, 2010*.* [PMID: 20109576]

65. Lawler, J.M., H.-B. Kwak. Potential exercise mitigation and regulation of age-induced remodeling in the heart. In “Modern Insights into Disease: Apoptosis.”December, 2009.

64. Hindle, A.G., Lawler, J.M., Campbell, K.L. and Horning, M. Muscle senescence in short-lived wild mammals, the soricine shrews *Blarina brevicauda* and *Sorex palustris*. *J. Exp. Zool.* 311A, 358-367, 2009*.* [PMID: 19296507]

63. Lawler, J.M., H.-B. Kwak, J.-H. Kim, and M-H Suk. Exercise training upregulates MnSOD while reducing pro-oxidant signaling in the aging rat left ventricle. *American Journal of Physiology.* 296: R1496-R1502, 2009. [PMID: 19297546]

62. Song, W., H.-B. Kwak, and J.M. Lawler. Exercise training modulates the NOS profile in skeletal muscle from old rats. *Journal of Gerontology Ser. A Biological Sciences and Medical Sciences.* 64: 540-549*,* 2009. [PMID: 19304939]

61. Hindle, A.G., M. Horning, J.E. Melish, and J.M. Lawler. Diving into old age:

muscular senescence in a large-bodied, long-lived mammal, the Weddell seal

(*Leptonychotes weddellii*).  *Journal of Experimental Biology.*  212: 790-796, 2009.

[PMID: 19251994]

60. Lawler, J.M. Exercise protection against oxidative stress, apoptosis, and remodeling in

###### aging skeletal muscle. Chapter In: *Free Radicals in Biology and Medicine*. C. Gutiérrez-Merino (Ed.), pp. 1-19, 2008.

59. Kim, J.H., H.B. Kwak, C. Leeuwenburgh, and J.M. Lawler. Lifelong exercise and

mild (8%) caloric restriction attenuate age-induced alterations in plantaris muscle

morphology, oxidative stress, and IGF-1 in the Fischer-344 rat. *Experimental*

*Gerontology.* 43: 317-329, 2008. [PMID: 18313875]

58. Marzetti, M, J.M. Lawler, A. Hiona, T. Manini, A.Y. Seo, and C. Leeuwenburgh.

Modulation of age-induced apoptotic signaling and cellular remodeling by exercise

and caloric restriction in skeletal muscle. *Free Radical Biology & Medicine*.

15: 160-168, 2007. [PMID: 18191752]

57. Lawler, J.M., H.-B. Kwak, W. Song, and J. Parker. Exercise training reverses,

downregulation of HSP70 and antioxidant enzymes in porcine skeletal muscle

after chronic coronary artery occlusion. *American Journal of Physiology*. 291:

1756-1763, 2006. [PMID: 16873555]

1. Song, W. H.-B. Kwak, and J.M. Lawler. Exercise training attenuates age-induced

changes in apoptotic signaling in rat skeletal muscle. *Antioxidants & Redox*

*Signaling*. 8: 517-528, 2006. [PMID: 16677096]

55. Kwak, H.-B., W. Song, and J.M. Lawler. Exercise-training ameliorates age-induced elevation in Bax/Bcl-2 ratio, apoptosis, and remodeling in the aging rat heart. *The FASEB Journal.* 20: 791-793, 2006.

1. Lawler, J.M., W. Song, and H.B. Kwak. Differential regulation of heat shock

proteins by hindlimb unloading and reloading in the rat soleus. *Muscle & Nerve*.

33: 200-207, 2006. [PMID: 16258950]

53.Lawler, J.M., W. Song, and S.R. Demaree. Hindlimb unloading increases oxidative stress

and disrupts antioxidant capacity in skeletal muscle. *Free Radical Biology & Medicine*.

35: 9-16, 2003. [PMID: 12826251]

52. Lawler, J.M. and W. Song. Specificity of antioxidant enzyme inhibition in skeletal muscle

to reactive nitrogen species donors. *Biochemical & Biophysical Research Communication*. 294: 1093-1100, 2002. [PMID: 12074589]

51. Lawler, J.M., Z. Hu, J.S. Green, S.F. Crouse, P.W. Grandjean, and R.G. Bounds.

Combination of estrogen replacement and exercise protects against HDL oxidation in post-menopausal women. *International Journal of Sports Medicine*. 23: 477-483, 2002. [PMID: 12402178]

50. Lawler, J.M., W.S. Barnes, G. Wu, W. Song, and S.R. Demaree. Direct antioxidant

properties of creatine. *Biochemical & Biophysical Research Communication*. 290:

47-52, 2002.

49. Demaree, S.R., S.K. Powers, and J.M. Lawler. Fundamentals of exercise metabolism. In:

American College of Sports Medicine Resource Manual for Guidelines for Exercise

Testing and Prescription. 4th Ed. Williams & Wilkins: Baltimore MD, pp. 133-140

2001.

48. Lawler, J.M. and S.R. Demaree. Relationship between NADP-specific isocitrate

dehydrogenase and glutathione peroxidase in aging rat skeletal muscle. *Mechanisms of*

*Ageing and Development*. 122: 291-304, 2001. [PMID: 11311317]

47. Lawler, J.M., and Z. Hu. Interaction of nitric oxide and reactive oxygen species on

contractility of the rat diaphragm. *Acta Physiologica Scandinavica*. 169: 229-236, 2000. [PMID: 10886037]

46. O'Kroy, J.A., J.M. Lawler, J. Stone, and T.G. Babb. Airflow limitation and regulation of

end expiratory lung volume during exercise. *Respiration Physiology*. 119: 57-68, 2000.

45. Gonzalez, J., J.R. Coast, J.M. Lawler, and H.G. Welch. Chest wall restriction to study effects on pulmonary function and exercise. II. The energetics of restrictive breathing. *Respiration.* 66: 188-194, 1999. [PMID: 10202329]

44. Demaree, S.R., J.M. Lawler, J. Linehan, and M.D. Delp. Aging alters antioxidant enzyme

activities in the aorta from Fischer-344 rats. *Acta Physiologica Scandinavica.* 166: 203-

208, 1999. [PMID: 10468656]

43. Powers, S.K., J.M. Lawler, and H.K. Vincent. The diaphragm and oxidative stress. In: *Oxidative Stress in Skeletal Muscle.* A.Z. Reznick et al. (Eds). Birkhauser Verlag:

Basel, Switzerland, pp. 223-237, 1998.

42. Lawler, J.M., Z. Hu, and W.S. Barnes. Effect of reactive oxygen species on K+ contractures in the rat diaphragm. *Journal of Applied Physiology*. 84: 948-953, 1998. [PMID: 9480956]

41. Powers, S.K. and J.M. Lawler. Fundamentals of exercise metabolism. In: *American College of Sports Medicine Resource Manual for Guidelines for Exercise Testing and Prescription.* 3rd Ed. Williams & Wilkins: Baltimore MD, pp. 129-136, 1998.

40. Craig, B.N., J.J. Congleton, C.J. Kerk, J.M. Lawler, and K.P. McSweeney. Correlation of

injury occurrence data with estimated maximal aerobic capacity and body composition in a

high frequency manual handling tasks. *American Industrial Hygeine Association Journal*.

59: 25-33, 1998. [PMID: 9438332]

39. Lawler, J.M. and S.K. Powers. Oxidative stress, antioxidant capacity, and the contracting diaphragm. *Canadian Journal of Applied Physiology*. 23: 23-55, 1998. [PMID: 9494738]

38. Lawler, J.M., C.C. Cline, Z. Hu, and J.R. Coast. Effect of oxidative stress and acidosis on

diaphragm contractile function. *American Journal of Physiology*. 273: R630-R636, 1997.

[PMID: 9277548]

37. Lawler, J.M., C.C. Cline, Z. Hu, and J.R. Coast. Effect of oxidant challenge on contractile function of the aging rat diaphragm. *American Journal of Physiology.* 272: E201-E207, 1997.

[PMID: 9124323]

36. Coast, J.R., R.A. Shanely, J.M. Lawler, and R.A. Herb. Lactic acidosis and diaphragm contractility. *American Journal of Respiratory and Critical Care Medicine*. 152: 1648- 1652, 1995. [PMID: 7582309]

35. Lawler, J.M., C.C. Cline, J. O'Kroy, and J.R. Coast. Effects of inspired O2 and CO2 on ventilatory responses to LBNP-release and acute head-down tilt. *Aviation, Space, and Environmental Medicine.* 66: 751-756, 1995. [PMID: 7487808]

34. Powers, S.K., D. Criswell, J. Lawler, D. Martin, L.L. Ji, and G. Dudley. Regional training- induced increases in diaphragmatic oxidative and antioxidant enzymes. *Respiration Physiology*. 95: 227-237, 1994. [PMID 8191043]

1. Lawler, J.M., S.K. Powers, and D. Criswell. Gender differences in the biochemistry of the

rat diaphragm. *Respiration Physiology*. 97: 263-273, 1994.

1. Mengelkoch, L., A.D. Martin, and J.M. Lawler. A review of the principles of pulse oximetry

and accuracy of pulse oximeter estimates during exercise. *Physical Therapy*. 74: 40-49, 1994. [PMID: 8265727]

31. Lawler, J.M., S.K. Powers, H. VanDijk, T. Visser, M. Kordus, and L.L. Ji. Metabolic and

antioxidant enzyme activities in the diaphragm: effects of acute exercise. *Respiration Physiology.* 96: 139-149, 1994. [PMID: 8059080]

30. Powers, S.K., D. Criswell, J. Lawler, L.L. Ji, D. Martin, R. Herb, and G. Dudley. Influence of exercise and fiber type on antioxidant enzyme activity in rat skeletal muscle. *American Journal of Physiology*. 266: R375-R380, 1994. [PMID: 8141392]

29. Lawler, J.M., S.K. Powers, T. Visser, H. VanDijk, M. Kordus, and L.L. Ji. Acute exercise and skeletal muscle antioxidant and metabolic enzymes: effects of fiber-type and age. *American Journal of Physiology*. 265: R1344-R1350, 1993. [PMID: 8285276]

28. Powers, S.K., D. Criswell, J. Lawler, D. Martin, F.K. Lieu, L.L. Ji, and R. Herb. Rigorous exercise training increases superoxide dismutase activity in the ventricular myocardium. *American Journal of Physiology*. 265: H2094-H2098, 1993. [PMID: 8285249]

27. Lawler, J.M., S.K. Powers, and D.S. Criswell. Inducibility of NADP-specific isocitrate dehydrogenase with endurance training in skeletal muscle. *Acta Physiologica Scandinavica*. 149: 177-181, 1993. [PMID: 8266807]

26. Criswell, D.S., S. Powers, S. Dodd, J. Lawler, W. Edwards, K. Renshler and S. Grinton. Cellular oxidative and antioxidant response in skeletal muscle to interval and continuous exercise training. *Medicine and Science in Sports and Exercise*. 25: 1135-1140, 1993.

25. Lawler, J.M., S.K. Powers, J. Hammeren, and A.D. Martin. Oxygen cost of treadmill

running in 24 month old Fischer-344 rats. *Medicine and Science in Sports and Exercise*.

25: 1259-1264, 1993. [PMID: 8289613]

24. Tumer, N., C. Hale, J. Lawler, and R. Strong. Modulation of tyrosine hydroxylase gene

expression in the rat adrenal gland by exercise: effects of age. *Brain Research, Molecular Brain Research*. 14: 51-56, 1992. [PMID: 1353855]

23. Powers, S.K., S. Grinton, J. Lawler, D. Criswell, and S. Dodd. High intensity exercise training- induced metabolic alterations in respiratory muscles. *Respiration Physiology*. 89: 169-177, 1992. [PMID: 1439299]

1. Hammeren, J., S. Powers, J. Lawler, D. Criswell, D. Martin, D. Lowenthal, and M. Pollock.

Exercise training-induced alterations in skeletal muscle oxidative and antioxidant enzyme activity in senescent rats. *International Journal of Sports Medicine*. 13: 412-416, 1992. [PMID:

151960]

21. Powers, S.K., J. Lawler, D. Criswell, F.-K. Lieu, and S. Dodd. Alterations in diaphragmatic oxidative and antioxidant enzymes in the senescent Fischer-344 rat. *Journal of Applied Physiology*. 72: 2317-2321, 1992. [PMID: 1629087]

20. Grinton, S., S.K. Powers, J. Lawler, D. Criswell, S. Dodd, and W. Edwards. Endurance-training induced increases in expiratory muscle oxidative capacity. *Medicine and Science in Sports and Exercise.* 24: 551-555, 1992. [PMID: 1533265]

19. Powers, S., J. Lawler, D. Criswell, F.-K. Lieu, and D. Martin. Aging and respiratory muscle plasticity: effects of endurance training. *Journal of Applied Physiology*. 72: 1068-1073, 1992.

[PMID: 1568962]

18. Deason, J., S. Powers, J. Lawler, D. Ayers, and M.K. Stuart. Physiological correlates to

800 meter running performance. *Journal of Sports Medicine and Physical Fitness*. 31:

499-504, 1991. [PMID: 1806725]

17. Powers, S.K., S. Dodd, D. Criswell, J. Lawler, D. Martin, and S. Grinton. Evidence for an

alveolar-arterial PO2 gradient threshold during incremental exercise. *International Journal of Sports Medicine*. 12: 313-318, 1991. [PMID: 1889942]

16. Criswell, D.S., S.K. Powers, J. Lawler, J. Tew, R. Tulley, Y. Iyriboz, and K. Wheeler. Influence of a carbohydrate-electrolyte beverage on performance and blood homeostasis during football. *Journal of Sports Nutrition*. 1: 178-191, 1991. [PMID: 1844994]

15. Powers, S., J. Lawler, D. Criswell, H.V. Forster, and H. Silverman. Age-related changes in

enzyme activity in the rat diaphragm. *Respiration Physiology*. 83: 1-10, 1991. [PMID:

2028101]

14. Powers, S., J. Lawler, D. Criswell, H. Silverman, H.V. Forster, S. Grinton, and D. Harkins. Regional metabolic differences in the rat diaphragm. *Journal of Applied Physiology*. 69: 648- 650, 1990. [PMID: 2228877]

13. Powers, S., J. Lawler, D. Criswell, S. Grinton, and G. Bagby. Endurance training-induced

cellular adaptation in respiratory muscles. *Journal of Applied Physiology*. 68: 2114-2118, 1990. [PMID: 2361913]

12. Powers, S., J. Lawler, S. Dodd, R. Tulley, G. Landry and K. Wheeler. Fluid replacement drinks during heavy exercise: effects on minimizing exercise-induced disturbances in homeostasis. *European Journal of Applied Physiology*. 60: 54-60, 1990. [PMID: 2311595]

11. Powers, S.K., S. Dodd, J. Lawler, and K. Wheeler. Effects of carbohydrate feedings during high intensity, short term exercise. In: *The Theory and Practice of Athletic Nutrition: Bridging the Gap*. K. Wheeler (Ed). Columbus, Ohio: Ross Laboratories. pp. 1-10, 1989.

10. Lawler, J., G. Landry, S. Powers, B. Baker, S. Dodd, R. Richard. Accuracy of the Ohmeda

pulse oximeter in estimating heart rate during exercise. *Respiratory Care*. 34: 724-727,

1989.

9. Powers, S., J. Lawler, J. Dempsey, S. Dodd, and G. Landry. Effects of incomplete gas exchange on VO2max. *Journal of Applied Physiology.* 66: 2491-2495, 1989. [PMID: 2745310]

8. Dodd, S., S. Powers., D. Thompson, G. Landry, and J. Lawler. Exercise performance following intense, short-term ventilatory work. *International Journal of Sports Medicine*. 10: 48-52, 1989. [PMID: 2703284]

1. Lawler, J., S. Powers, and D. Thompson. Linear relationship between VO2 max and

VO2max decrement during exposure to acute hypoxia. *Journal of Applied Physiology*. 64:

1486-1492, 1988. [PMID: 3378983]

6. Powers, S., S. Dodd, J. Lawler, G. Landry, M. Kirtley, T. McKnight, and S. Grinton.

Incidence of exercise induced hypoxemia in elite endurance athletes at sea level.

*European Journal of Applied Physiology*. 58: 298-302, 1988. [PMID: 3220070]

5. Powers, S., R. Beadle, D. Thompson, and J. Lawler. Ventilation and blood gas dynamics at the onset and offset of exercise in the pony. *Journal of Applied Physiology*. 62: 141-148, 1987. [PMID: 3104284]

4. Powers, S., R. Beadle, J. Lawler, and D. Thompson. Respiratory gas exchange kinetics in transition from rest or prior exercise in ponies. *Proceedings of the Second International Conference on Equine Exercise Physiology.* 2: 148-160, 1987.

3. Lawler, J., S. Powers, and S. Dodd. A time-saving accelerated cycle ergometry protocol to determine peak VO2. *British Journal of Sports Medicine*. 21: 171-173, 1987. [PMID: 3435821]

2. Powers, S., R. Beadle, J. Lawler, and D. Thompson. Oxygen deficit-debt relationships in

the pony during treadmill exercise. *Respiration Physiology*. 70: 251-263, 1987. [PMID:

3671903]

1. Powers, S., J. Lawler, D. Thompson, and R. Beadle. Measurement of oxygen uptake in

the non-steady state. *Aviation, Space, and Environmental Medicine*. 58: 323-327, 1987.

**RESEARCH PRESENTATIONS AND ABSTRACTS**

Lawler JM, Holly H, Ryan P, Janini Gomes M, Brooks M-C, Jennifer Cardona J, Nancy D.

Turner ND, Ford JR. Effect of Fish Oil and Pectin on Fibrosis and Inflammation in Mouse Hearts Exposed to HZE Radiation. 2018 Integrative Physiology of Exercise, San Diego, CA 2018.

Lawler, JM. A somethingburger? Calorie dense food elicits a metformin-sensitive surprise

in the soleus muscles of young mice. 2018 Texas A&M Nutrition Obesity Symposium, April, 2018.

Allen K, Hindle H, Vázquez-Medina JP, Lawler JM, Mellish JE. Horning M. Age- and

muscle-specific oxidative stress management strategies in a long-lived diver, the Weddell seal. *Experimental Biology*, San Diego, CA, 2018*.*

Lawler, JM. Redox Regulation of Mechanotransduction During Spaceflight: School of

Hard Nox2? Current Topics in Translational Research. Center for Translational Research in Aging & Longevity. Texas A&M University, 2018.

Janini Gomes M, Ryan P, Holly D, Guzzoni V, Hord J, Kuczmarski JM, Lawler MS, Lawler

JM. Effect of EUK-134 on nNOS translocation and membrane repair proteins in unloaded skeletal muscle. *American Society for Gravitational and Space Biology & Radiation meeting.* Seattle, WA, 2017.

Ryan P, Lawler MS, Holly, D, Janini Gomes M, Hord J, Lawler JM. Nox2 Inhibition

Prevents Skeletal Muscle Atrophy and nNOS Translocation in Hindlimb Unloaded Rats. *American Society for Gravitational and Space Biology & Radiation meeting.* Seattle, WA, 2017.

Holly, D, Ryan P, Janini Gomes M, Guzzoni V, Garcia-Villatoro EE. Effect of Fish Oil and

Curcumin Supplementation on Muscle Cross Sectional Area, Anabolic Signaling. *American Society for Gravitational and Space Biology & Radiation meeting.* Seattle, WA, 2017.

Lawler JM, Hord JM, Guzzoni V, Kuczmarski JM, Ryan P, Holly, D, Janini Gomes M,

Rodriguez DA, Lee Y, Marcela Garcia, Falcon K, Brooks M-C, Lawler MS, Fluckey JD. The Role of Oxidative Stress in Akt-mTOR Anabolic Signaling in Unloaded Skeletal Muscle. *American Society for Gravitational and Space Biology & Radiation meeting.* Seattle, WA, 2017.

Hord JM, Garcia M, Lawler JM. Age-Related Perturbations in the Sarcolemmal

Environment are Attenuated by Lifelong Mild Caloric Restriction and Voluntary Wheel

Running. Presented at the Experimental Biology meeting, *FASEB Journal.* San Diego, CA, 2016.

Lawler JM, Hord JM, Rodriguez DA, Lee Y, Guzzoni V, Garcia-Villatoro EE, Garcia M,

Kuczmarski, JM Lawler MS. Effect of Nox2 inhibition on unloading-induced changes

in morphology and nNOSµ translocation in the rat soleus. Presented at the

Experimental Biology meeting, *FASEB Journal.* San Diego, CA, 2016.

Kristian Falcon, Marcela Garcia, Katherine Farris, Jessica Scheibe, Jeffrey M. Hord, &

John M. Lawler. Reduction in Sarcolemmal Localized nNOS and Activation of FoxO3a

During Hindlimb Unloading is Ameliorated by Angiotensin II Receptor Blockade.

Presented at Student Research Week. Texas A&M University, 2016.

Rodriguez DA, Hord JM, Lee Y, Kuczmarski JM, Guzzoni V, Lawler JM. Treatment with

EUK-134 Enhances Anabolic Akt/mTOR/p70S6kinase Pathways, Protecting Against Muscle Atrophy in the Rat Soleus in a 7 Day Hindlimb Unloading. Presented at the Texas American College of Sports Medicine meeting, *International Journal of Exercise Science.* College Station, 2016.

Little SE, Rodriguez DA, Hord JM, Lee Y, Kuczmarski JM, Guzzoni V, Lawler JM.

Mediation of the translocation of nNOSμ during unloading-Induced atrophy of

skeletal muscle via NOX2 inhibition. Presented at the Texas American College

of Sports Medicine meeting, *International Journal of Exercise Science.* College

Station, 2016.

Lawler JM, Hord JM, Guzzoni V, Lee Y, Kuczmarski JM, Lawler MS, Rodriguez D,

Garcia-Villatoro EE.Redox Regulation of Mechanotransduction Leading to Muscle

Atrophy during Mechanical Unloading *Presented at the* American Society for

Gravitational and Space Biology & Radiation. November 2015, Alexandria, VA

Lawler JM. Redox Regulation of Unloading-induced Skeletal Muscle Atrophy:

Mechanisms and Translations. Department of Nutrition & Food Science Graduate

Seminar, 2015.

Hord JM, Guzzoni V, Garcia-Villatoro EE, Ginnings Z, Lee Y, J. Kuczmarski JM, Lawler

JM. Loss of nNOS sarcolemmal localization and activity during hindlimb unloading is

mitigated by Losartan administration. American College of Sports Medicine meeting,

Medicine Science in Sports & Exercise. San Diego, CA, 2015.

Lawler JM, Hord JM, Guzzoni V, Lee Y, Garcia-Villatoro EE, Ginnings Z,

Kuczmarski JM. Role of Nox2 on mechanical unloading-induced skeletal muscle

atrophy. American College of Sports Medicine meeting, Medicine Science in Sports &

Exercise. San Diego, CA, 2015.

Garcia-Villatoro EE, Guzzoni V, Botchlett R, Hord JM, Lawler JM. Effect of fish oil and

curcumin on reducing unloading-induced skeletal muscle atrophy. 2015 Texas A&M

Agrilife Food and Nutrition Conference.

Shimkus, KL, Lee Y, Savio EM, Wiggs, MO, Macias BR, Deaver JW, Hord JM, Lima F,

Shirazi-Fard Y, Green ES, Braby LA, Hogan HA, Lawler JM, Bloomfield, SA, Fluckey

JD. Radiation Exacerbates Alterations to Skeletal Muscle Morphology Subjected to

Simulated Lunar Environment. NASA. Human Research Program meeting.

Galveston, TX, 2015.

Lawler, JM. Spaceflight Sarcopenia: Redox Regulation of nNOSµ Translocation

NASA. Human Research Program meeting. Galveston, TX, 2015.

Lawler, JM. nNOS and Skeletal Muscle Real Estate: Location, Location, Location

Exercise & Nutrition Science Graduate Seminar, Virginia Tech, Blacksburg, VA, 2014.

Kuczmarski JM, Lee Y, Hord JM, Guzzoni V, Lawler JM. Oxidant-induced Skeletal

Muscle Atrophy in Microgravity: Elucidating Underlying Mechanisms and Developing Novel, Targeted Countermeasures. NSBRI Summer Bioastronautics Institute. May 2014. Houston, TX

Lawler JM, Lee Y, Hord JM, Guzzoni V, and Kuczmarski JM. Mitochondrial ROS Amplify

Nox2 Signaling and Atrophy in the Rat Soleus with 7 Days of Hindlimb Unloading.

*Experimental Biology’14 meeting*, *FASEB J.* 28: San Diego, CA, 2014.

Hord JM, Lee Y, Lawler JM. Angiotensin II Receptor Blockade Protects Against the Slow

to Fast Fiber Type Shift and Type I Fiber Atrophy in the Rat Soleus with 7 Days of Hindlimb Unloading. *Experimental Biology’14 meeting*, *FASEB J.* 28: San Diego, CA, 2014.

Lee Y, Lawler MS, Botchlett R, Hord JM, and Lawler JM. Dysregulation of dysferlin during

7 days mechanical unloading is mediated by ROS in rat soleus muscle. *Experimental Biology’14 meeting*, *FASEB J.* 28: San Diego, CA, 2014.

Hord JM. Inactivity-induced skeletal muscle atrophy: role of 12/15-Lipoxygenase. 2014 Texas

Chapter of the American College of Sports Medicine meeting. Fort Worth, TX 2014.

Lee Y. Role of Nox2 in disuse-induced skeletal muscle atrophy. 2014 Texas Chapter of the

American College of Sports Medicine meeting. Fort Worth, TX 2014.

Botchlett RE, Woo SL, Xu H, Li H, Wu C, and Lawler JM. Effects of a high fat diet and

Metformin treatment on sarcolemmal and insulin signaling protein expression in

young mice. Diet and Optimum Health Conference, Corvallis, Oregon, May, 2013.

Lawler JM. “Redox-sensitive signaling in remodeling of the aging heart: Protection with

exercise.” Cardiovascular Research Institute, Texas A&M University, 2013.

Lee Y, Kwak HB, Kim JH, Van Remmen, H, Richardson AG, Lawler JM. Overexpression

of Mn superoxide dismutase attenuates age related upregulation of TGF-ß and remodeling in the aging heart. *Experimental Biology’13 meeting*, *FASEB J.* 27: Boston, MA, 2013.

Botchlett RE, Woo SL, Wu C, Lawler JM. Effects of a high fat diet and Metformin on

skeletal muscle membrane proteins and fiber size in young mice fed high fat diet. *Experimental Biology’13 meeting*, *FASEB J.* 27: Boston, MA, 2013.

Lawler JM, Lee Y, Hord JM, Botchlett RE, Fluckey JD.  Effect of EUK-134 on Insulin Signaling

and Morphology Alterations with 7 Days of Hindlimb Unloading in the Rat Soleus. *Experimental Biology’13 meeting*, *FASEB J.* 27: Boston, MA, 2013.

Lawler JM. "nNOS as a Sensor of Dynamic Stress and Strain in Skeletal Muscle:

Transduction through Redox Signaling,” Department of Molecular Physiology &

Biophysics Seminar. Baylor College of Medicine, March 2013.

Lawler JM. "Redox Regulation of nNOS Dislocation from the Sarcolemma with Skeletal

Muscle Myopathy." Department of Pharmacology Seminar. University of Houston,

February 2013.

Lee, Y, JM Hord, HB Kwak, JH Kim, and JM Lawler. Exercise Ameliorate Disruption of

the Dystrophin-Glycoprotein Complex and Fibrosis in the Aging Rat Heart. *American College of Sports Medicine Meeting* San Francisco, CA, 2012.

Hord, JM, Y Lee, CL Leeuwenburgh, and DA Martinez. Lifelong wheel running with mild

caloric restriction protects against the age-related disruption of the dystrophin-glycoprotein

complex (DGC) in skeletal muscle. *Experimental Biology’12 meeting*, *FASEB*

*J.* 26: San Diego, CA, 2012.

Lawler, JM, M. Kunst, K. Joshi, J.M. Hord, Y. Lee, R. Botchlett, A. Ramirez, C. Duval, and DA

Martinez. Redox Regulation of nNOS Translocation and Muscle Fiber Atrophy During Short-

term Mechanical Unloading. *Experimental Biology’12 meeting*, *FASEB J.* 26: San Diego,

CA, 2012.

Lee, Y, Hord, JM, Kwak HB, Kim JH, and Lawler JM. Exercise ameliorates disruption of

the dystrophin-associated glycoprotein complex and fibrosis in the aging rat heart.

*Int. J. Exer. Sci.* Texas Chapter - American College of Sports Medicine Meeting, Austin, TX, 2012.

Ramirez A, C Lai, R Botchlett, M Koozechian, JM Lawler. Skeletal muscle damage with

disuse in middle-age rats can be alleviated by use of geranylgeranylacetone (GGA) to

induce HSP70. *Student Research Week.* Texas A&M University, 2012.

Botchlett, R, Y Lee, JM Hord, and JM Lawler. EUK-134 reduces age-induced loss of

nNOSµ from the sarcolemma in the rat plantaris. *Student Research Week.* Texas

A&M University, 2012.

Lawler, JM. Amelioration of Fibrosis and Remodeling in the Aging Heart by Exercise

Training: Regulation by TGF-ß Dependent Pathways. *Cardiovascular Research*

*Institute Seminar – Texas A&M Health Science Center*, 2011.

Hord J., Kunst M., Joshi K., Lee Y., Martinez, DA, and Lawler, JM. nNOS Translocation

from the Sarcolemma with Mechanical Unloading in Skeletal Muscle: Redox Regulation of Mechanotransduction. Whitaker Poster Sessions, Dept. of Biomedical Engineering, Texas A&M University, 2011.

Lee Y, JM Hord, H.B. Kwak, J. Kim, and J.M. Lawler “Exercise Training Ameliorates

Disruption of the Dystrophin-Associated Glycoprotein Complex and Fibrotic Signaling in the Aging Rat Heart.” Whitaker Poster Sessions, Dept. of Biomedical Engineering, Texas A&M University, 2011.

Lee Y, J.M. Hord, H.B. Kwak, J.H. Kim, and J.M. Lawler. Exercise Training Reduces

Age-Dependent Elevation of Angiotensin II Type 1 receptor and NAD(P)H Oxidase.

*Experimental Biology’11 meeting*, *FASEB J.* 25: Washington, DC, 2011.

Lawler, J,M., J.M. Hord, Y. Lee Y, K. Joshi, and J.H. Kim. Redox Regulation of Caveolin-3 and

MMP-9 in the Diaphragm of *mdx* Mice. *Experimental Biology’11 meeting*, *FASEB J.* 25:

Washington, DC, 2011.

Hord, J, M. Kunst, K. Joshi, Y. Lee, D.A. Martinez and J.M. Lawler. “ROS-Mediated

Localization of Caveolin-3 in the Sarcolemma During Short-term Mechanical Unloading.” *Int. J. Exer. Sci.* Texas Chapter - American College of Sports Medicine Meeting, Austin, TX, 2011

Joshi, K., A. Yeh, H.B Kwak, J.H. Kim, JM Lawler. “Exercise Training Ameliorates Age-related Fibrosis in Rat Heart: Novel Imaging with Non-linear Optical Microscopy.” American Heart Association meeting, 2010.

Hindle, A, M. Horning, J.A. Mellish, and J. Lawler, Apoptosis but not oxidative stress underlies skeletal muscle senescence in a free-living diver, the Weddell seal

American Physiological Society Comparative meeting. Denver, Co, 2010.

Lawler, J.M. “Contribution of Oxidative Stress to Duchenne Muscular Dystrophy.” Invited Speaker. European Muscle Conference, Padova, Italy, 2010.

Lawler, J.M. “Redox Regulation of the Dystroglycan Complex and Inflammation in the Diaphragm of *mdx* Mice: Lessons for Mechanical Unloading and Aging.” Reproductive Biology Forum Seminar, Texas A&M University, 2009.

Lawler, J.M. ”Redox Regulation of Muscle During Unloading and Reloading: Targets for Countermeasures Combining Exercise with Stress Response and Antioxidant Strategies” NSBRI Space Life Science Seminar, Texas A&M University, 2009.

Kim, J.-H., and J.M. Lawler. Lifelong wheel running exercise and 8% caloric restriction attenuate caspase-independent apoptosis via downregulation of EndoG in the aging Fischer-344 rat plantaris. *Experimental Biology meeting*, *FASEB J.* 23: New Orleans, 2009.

Courtney, S, J-H Kim, BR Macias, C Canon, and JM Lawler. The effects of

exercise on caspase independent endonucleaseG and apoptosis inducing factor with

regards to age-related apoptosis. *Experimental Biology meeting*, 23: New Orleans, *FASEB J*, 23: 2009.

Kim, JH, BR Macias, C Canon, S Courtney, JM Lawler. EUK-134, a synthetic superoxide dismutase/catalase mimetic, protects against loss of muscle mass/body mass in diaphragm and gastrocnemius in mdx mice. *Experimental Biology meeting*, New Orleans, *FASEB J,* 23: 2009.

Macias BR, JH Kim, S Courtney, C Canon, JM Lawler. Short-term hindlimb unloading induces translocation of nNOS from the sarcolemma to sarcoplasm in skeletal muscle. *Experimental Biology meeting*, *FASEB J,* 23: New Orleans, 2009.

Kim, J.-H., H.B. Kwak, and J.M. Lawler. The effects of a NAD(P)H oxidase inhibition on matrix metalloproteinases and their inhibitors in the mdx diaphragm. *Annual ACSM Meeting in Texas Chapter*, Tyler TX, 2009.

Kim, J.-H., BR Macias, C Canon, S Courtney, and J.M. Lawler. EUK-134, a synthetic superoxide dismutase/catalase mimetic, protects against loss of muscle mass/body mass in diaphragm and gastrocnemius in mdx mice*. Experimental Biology meeting*, New Orleans, *FASEB J* 23: 2009.

Kim, J.-H., H.B. Kwak, and J.M. Lawler. “Effect of treadmill exercise and doxorubicin treatment on muscle mass/body mass in aging Fischer-344 Brown-Norway F1 rats.” Paper presented at the 2008 American College of Sports Medicine meeting, Indianapolis, IN. *Medicine & Science in Sports and Exercise* 40: S347, 2008.

Kwak, H.B., J.H. Kim, and J.M. Lawler. “Exercise attenuates extracellular matrix accumulation

in the aging rat heart.” Paper presented at the 2008 American College of Sports

Medicine meeting, Indianapolis, IN. *Medicine & Science in Sports and Exercise* 40: S359, 2008.

Kwak, H.B., J.H. Kim, and J.M. Lawler. “NAD(P)H oxidase inhibition upregulates anti-

apoptotic BAG-4 protein expression in the *mdx* diaphragm.” Paper presented at the

Experimental Biology ‘08 meeting, San Diego, CA. *FASEB J*., 22: 2008.

Kwak, H.B., J.H. Kim, and J.M. Lawler. “Responses of caspase-8 and caspase-12

pathways to 12 weeks of exercise training in aging rat skeletal muscle.” Paper

presented at the Experimental Biology ‘08 meeting, San Diego, CA. *FASEB J*., 22: 2008.

Lawler, J.M., H.B. Kwak, and J.H. Kim. “Exercise training upregulates survival proteins

BAG-4 and thioredoxin-2 in the aging rat heart.” Paper presented at the Experimental Biology ‘08 meeting, San Diego, CA. *FASEB J*., 22: 2008.

Lawler, JM. Amelioration of apoptotic signaling and remodeling by long-term exercise. In

“Age related muscle atrophy: causes & mechanisms.” UTHSCSA Nathan Shock Center

Conference on Aging. Bandera, TX, 2007.

Hindle, A.G., M. Horning, J.E. Mellish, and J.M. Lawler. Aging in a free-ranging pinniped

population: structural changes in swimming muscle. *17th Biennial Marine Mammal*

*Conference.* Capetown, South Africa, 2007.

Kwak, H.B., J.H. Kim, D.A. Martinez, and J.M. Lawler. Effect of aging and exercise training on

matrix metalloproteinases in rat heart. *Medicine & Science in Sports and Exercise*. 39: 2007.

Kim, J.H., H.B. Kwak, C. Leeuwenburgh, and J.M. Lawler. Effect of 8% caloric restriction and

lifelong wheel running exercise on MnSOD, Cu-ZnSOD, and HSPs in the Fischer-344 rat

plantaris. *Medicine & Science in Sports and Exercise*. 39: 2007.

Lawler, J.M. “Exercise Modulation of Fibrosis and Apoptotic Signaling in Aging Heart“ Department of Biomedical Engineering, Graduate Seminar, Texas A&M University, 2007.

Kwak, H.B., W. Song, J.H. Kim, and J.M. Lawler. Reloading-induced alterations in IGF-1 and

HSP70 signaling in the rat soleus following prolonged hindlimb unloading. Paper presented

at the Experimental Biology ‘07 meeting, Washington, DC. *FASEB Journal*. 21: A950,

2007.

Propst, G.K., Kwak, H.-B., Kim, J.-H, Dalton, R.L., and Lawler, J.M. Hindlimb unloading

induces a biphasic temporal response of Bcl-2 apoptotic signaling in the rat soleus muscle. *FASEB J,* 22:1238.20, 2008.

Lawler, J.M., H.B. Kwak, J.H. Kim, W. Song, and H. Van Remmen. Overexpression of

MnSOD attenuates remodeling in the aging mouse heart. Paper presented at the

Experimental Biology ‘07 meeting, Washington, DC. *FASEB Journal*. 21: A1311, 2007.

Kim, J.H., H.B. Kwak, C. Leeuwenburgh, and J.M. Lawler. Effect of lifelong exercise and

mild (8%) caloric restriction on IGF-1 and heat shock proteins in the plantaris of aging

Fischer-344 rats. Paper presented at the Experimental Biology ‘07 meeting, Washington, DC. *FASEB Journal*. 21: A1311, 2007.

Lawler, J.M. “Exercise regulation of age-induced apoptosis and remodeling in the aging

heart” Institute on Aging - Interdisciplinary Research Seminar Series. University of Florida

College of Medicine, 2006.

Lawler, J.M. Exercise Training Attenuates Apoptosis and Remodeling in the Aging Rat Heart.

Department of Pharmacological and Pharmaceutical Sciences – Seminar Series. College

of Pharmacy, University of Houston, 2006.

Judge S, Seo AY, Hofer T, Kalani R, Jang YM, Selman C, Phillips T, Prudencio M, Carter C1,

Pahor M, Sung B, Chung HY, Kim JH3, Kwak HB, Lawler J, Smith A, Hagen T, Speakman

JR, Leeuwenburgh C.Effects of Lifelong Exercise and 8% Caloric Restriction on Free

Radical Biology. American Geriatric Association meeting. Boston, MA June, 2006.

Hindle, A., S. Kanatous, J. Lawler, J. Mellish, and M. Horning. Does repeated breath-hold

exercise result in accelerated muscle aging? An investigation of a model species, the

Weddell seal (Leptonychotes weddeli). Scientific Committee for Antarctic Research, 2006.

Lawler, J.M. “Exercise training protects against age-induced changes in apoptotic signaling.”

Oral Communication in the Symposium entitled “The Role of Apoptosis and Aging in

Skeletal Muscle” presented at the 2006 American College of Sports Medicine meeting,

Denver, CO, 2006.

Kwak, H.B., J.H. Kim, D.A. Martinez, and J.M. Lawler. Alterations in p-HSP25 and redox

signaling in the rat soleus due to prolonged hindlimb unloading followed by 7 and 28 days

of reloading. Paper presented at the 2006 American College of Sports Medicine meeting,

Denver, CO. *Medicine & Science in Sports and Exercise*. 38: S5, 2006.

Lawler, J.M., H.B. Kwak, and J.H. Kim. Twelve weeks of exercise training upregulates Mn-

SOD while reducing iNOS and oxidative stress in the aging rat left ventricle. Paper presented at the 2006 American College of Sports Medicine meeting, Denver, CO. *Medicine & Science in Sports and Exercise.* 38: S419, 2006.

Kim, J.H., H.B. Kwak, C. Leeuwenburgh, and J.M. Lawler. Protection of tissue mass/body

mass by combination of lifelong voluntary exercise and mild (8%) caloric restriction in aging

Fischer-344 rats. Paper presented at the 2006 American College of Sports Medicine meeting, Denver, CO. *Medicine & Science in Sports and Exercise*. 38: S275, 2006.

Kwak, H.B., W. Song, J.H. Kim, and J.M. Lawler. Responses of fas/cytokine-mediated

apoptotic pathway to 12 weeks of treadmill training in the aging rat heart. Paper presented at the Experimental Biology ‘06 meeting, San Francisco, CA. *FASEB Journal*. 20: A394, 2006.

Lawler, J.M., H.B. Kwak, J.H. Kim, W. Song, and H. Van Remmen. Overexpression of

MnSOD reduces oxidative stress and pro-apoptotic signaling in the aging mouse heart.

Paper presented at the Experimental Biology ‘06 meeting, San Francisco, CA. *FASEB Journal*. 20: A1451, 2006.

Kim, J.H., H.B. Kwak, C. Leeuwenburgh, and J.M. Lawler. Lifelong exercise and mild (8%)

caloric restriction conserve cell morphology of the plantaris in the aging Fischer-344 rat.

Paper presented at the Experimental Biology ‘06 meeting, San Francisco, CA. *FASEB Journal* 20: A806, 2006.

Lawler, J.M. “Does exercise training attenuate age-induced apoptosis and remodeling in

heart and skeletal muscle?” Invited Speaker. Dept. of Applied Physiology and Kinesiology,

University of Florida, 2006.

Kwak, H.B., J.H. Kim, D.A. Martinez, and J.M. Lawler. Alterations in p-HSP25, iNOS, and NF-

kB in the rat soleus due to prolonged hindlimb unloading followed by 7 and 28 days of

reloading. Paper presented at the 2006 Texas ACSM meeting, Denton, TX.

Kim, J.H., H.B. Kwak, C. Leeuwenburgh, and J.M. Lawler. Protection of muscle morphology

by combination of lifelong voluntary exercise and mild (8%) caloric restriction in aging

Fischer-344 rats. Paper presented at the 2006 Texas ACSM meeting, Denton, TX

Lawler, J.M., H.B. Kwak, and J.H. Li. NAD(P)H oxidase inhibition reduces Bcl-2 family pro-

apoptotic signaling in the *mdx* mouse. Paper presented at the International Union of

Physiological Sciences/Experimental Biology 2005 meeting in San Diego, CA. *FASEB J.*

19: A573, 2005.

Lawler, J.M. Special Topics: Muscular Dystrophies of the Dystroglycan Complex.

Moderated by H. Lee Sweeney. Oral presentation at the International Union of

Physiological Sciences 2005 meeting in San Diego, CA.

Kwak, H.B., W. Song, and J.M. Lawler. Exercise training ameliorates age-induced elevation

of caspase-9, cleaved caspase-3, and apoptosis in the rat heart. Paper presented at the

International Union of Physiological Sciences/Experimental Biology 2005 meeting in San

Diego, CA. *FASEB J.* 19: A1569, 2005.

Lawler, J.M. “Exercise attenuation of pro-apoptotic signaling in aging heart and skeletal

muscle.” Invited Speaker. Department of Physiology. East Carolina University, 2005.

Kwak, H.B. W. Song, and J.M. Lawler. Exercise training ameliorates age-induced elevation of

apoptotic signaling in the heart. Manuscript Presentation at *TACSM Annual Meeting*, Dallas, TX, 2005.

Lawler, J.M. Don’t fear the reaper? Apoptotic signaling in skeletal muscle. Exercise Science

Seminar Series. Texas A&M University, 2004.

Song, W., H.-B. Kwak, and J.M. Lawler. Effect of exercise training on pro-inflammatory and

pro-apoptotic signaling in aging skeletal muscle. Paper presented at the Experimental

Biology ’04 meeting in Washington, DC. *FASEB J*. 18: A753, 2004.

Lawler, J.M., W. Song, H.B. Kwak, and J. L. Parker. Exercise training upregulates heat shock

proteins in the ischemic porcine heart. Paper presented at the Experimental Biology ’04

meeting in Washington, DC. *FASEB J*. 18: A751, 2004.

Kwak, H.B., W. Song, and J.M. Lawler. Exercise training modulates apoptotic signaling in the

aging rat heart. Paper presented at the Experimental Biology ’04 meeting in Washington,

DC. *FASEB J*. 18: A753, 2004.

Li, J.H., H.B. Kwak and J.M. Lawler. Inhibition of NAD(P)H oxidase ameliorates skeletal

muscle Bcl-2 family apoptotic signaling in *mdx* mice. Paper presented at the Texas Affiliate

of the American College of Sports Medicine meeting, Tyler, TX, 2004.

Kwak, H.B., W. Song, and J.M. Lawler. Exercise training reverses Bcl-2 pro-apoptotic

signaling in the rat left ventricle. Paper presented at the Texas Affiliate of the American

College of Sports Medicine meeting, Tyler, TX, 2004.

Kwak, H.B., and J.M. Lawler. Exercise and apoptotic signaling in the aging heart. Oral

Presentation at *Exercise Science Seminar,* Dept. of Heath and Kinesiology, Texas A&M

University, 2004.

Kwak, H.B. and J.M. Lawler. Effects of exercise training on apoptotic signaling in the aging rat

heart. Oral Presentation at *Student Research Week*, Texas A&M University, 2004.

Song, W., J.M. Lawler, and S.A. Bloomfield. Hindlimb unloading increases iNOS protein

expression and NF-kappaB DNA binding activity in rat skeletal muscle. Paper presented at

the Experimental Biology ’03 meeting in San Diego, CA. *FASEB J*. 17: A945, 2003.

Lawler, J.M., W. Song, and H.B. Kwak. Differential regulation of heat shock proteins in the

rat soleus by hindlimb unloading and reloading. Paper presented at the Experimental

Biology ’03 meeting in San Diego, CA. *FASEB J*. 17: A945, 2003.

Kwak, H.B., J.M. Lawler, W. Song, and J.G. Tidball. NF-kappaB activity and iNOS protein

expression are upregulated in skeletal muscle of mdx mice. Paper presented at the

Experimental Biology ’03 meeting in San Diego, CA. *FASEB J.* 17: A1257, 2003.

Song, W., J.M. Lawler, and S.A. Bloomfield. Hindlimb unloading increases iNOS protein

expression and NF-kappaB DNA binding activity in rat skeletal muscle. Paper presented at

the Texas Affiliate of the American College of Sports Medicine meeting, Houston, TX, 2003.

Kwak, H.B., J.M. Lawler, W. Song, and J.G. Tidball. NF-kappaB activity and iNOS protein

expression are upregulated in skeletal muscle of mdx mice. Paper presented at the

Texas Affiliate of the American College of Sports Medicine meeting, Houston, TX, 2003.

Lawler, J.M. Redox modulation of skeletal muscle contractile function and muscle

wasting. Paper presented at the Human Nutrition Seminar Series. Texas A&M

University, 2002.

Song, W., S.A. Spier, J.Muller-Delp, and J.M. Lawler. Effects of aging and exercise training

on iNOS protein expression in skeletal muscle. Paper presented at the 2002 American

College of Sports Medicine meeting in St. Louis, MO. *Medicine and Science in Sports and*

*Exercise*. 34: S189, 2002.

Lawler, J.M., W. Song, and J.L. Parker. Is skeletal muscle TNF- lower in pigs with chronic

coronary occlusion following exercise training? Paper presented at the 2002 American

College of Sports Medicine meeting in St. Louis, MO. *Medicine and Science in Sports*

*and Exercise*. 34: S188, 2002.

Song, W., S.A. Spier, J. Muller-Delp, and J.M. Lawler. Exercise training attenuates age-

induced iNOS upregulation. Paper presented at the Texas Chapter of the American

College of Sports Medicine in Georgetown, TX, 2002.

Lawler, J.M., S.R. Demaree, W. Song, and J.L. Parker. Upregulation of antioxidant

capacity by endurance training in pigs following chronic coronary occlusion. Paper

presented at the 2001 American College of Sports Medicine meeting in Baltimore,

MD. *Medicine and Science in Sports and Exercise*. 33: S28, 2001.

Song, W., and J.M. Lawler. Increased dichlorofluorescein oxidation in rat skeletal muscle

with hindlimb suspension. Paper presented at the Texas Chapter of the American College of Sports Medicine in Fort Worth, TX, 2001.

Lawler, J.M. Changes in antioxidant capacity and oxidative stress in muscle wasting models.

Oral presentation at the Free Radical Interest Group: “Redox Regulation, Oxidative

Stress, and Skeletal Muscle” meeting in Gainesville, FL, 2001

Tiidus, P.M., J.M. Lawler, and S.K. Powers. Oxidants, antioxidants and exercise: influence

on the aging process. Paper presented at the 2000 American College of Sports Medicine

meeting in Indianapolis, IN. *Medicine and Science in Sports and Exercise*. 32: S297,

2000.

Lawler, J.M., S.R. Demaree, and W. Song. Downregulation of antioxidant enzymes in the

rat diaphragm by sodium nitroprusside. Paper presented at the 2000 American

College of Sports Medicine meeting in Indianapolis, IN. *Medicine and Science in Sports*

*and Exercise*. 32: S105, 2000.

Demaree, S.R., J.M. Lawler, M.R. Allen, and S.A. Bloomfield. Alterations in antioxidant

status in the rat soleus with hindlimb suspension. Paper presented at the 2000

American College of Sports Medicine meeting in Indianapolis, IN. *Medicine and Science*

*in Sports and Exercise*. 32: S104, 2000.

Song, W., J.M. Lawler, and S.R. Demaree. Xanthine oxidase-induced modulation of rat

diaphragm contractility: effects of Ca2+ channel antagonists and agonists. Paper

presented at the 2000 American College of Sports Medicine meeting in Indianapolis, IN. *Medicine and Science in Sports and Exercise*. 32: S104, 2000.

Demaree, S.R., J.M. Lawler, and W.S. Barnes. Nitric oxide donor reduces rat diaphragm

oxygen consumption. Paper presented at the Texas Chapter of the American College

of Sports Medicine in College Station, TX, 2000.

Song, W., J.M. Lawler, and Demaree, S.R. Xanthine oxidase-induced modulation of rat

diaphragm contractility: effect of nitrendipine (Ca2+ channel antagonist). Paper presented

at the Texas Chapter of the American College of Sports Medicine in College Station, TX, 2000.

Demaree, S.R. and J.M. Lawler. Relationship between glutathione peroxidase and NADPH- producing enzymes in aging rat skeletal muscle. *Medicine and Science in Sports and Exercise*. 31: S277, 1999. Presented at the American College of Sports Medicine meeting, Seattle, WA, 1999.

Lawler, J.M. and Z. Hu. Effect of a nitric oxide donor on xanthine oxidase-induced potentiation of rat diaphragm contractions. *Medicine and Science in Sports and Exercise.*

31: S277, 1999. Presented at the American College of Sports Medicine meeting, Seattle,

WA, 1999.

Barnes, W. and J. Lawler. Hydrogen peroxide modulates caffeine and potassium-induced oxygen uptake in frog skeletal muscle *in vitro*. *FASEB Journal.* 13: A84, 1999. Presented at the Experimental Biology meeting, Washington DC, 1999.

Lawler, J.M.Effects of free radical or "oxidative stress" on contractile function in skeletal muscle. Diabetes Center Seminar Series. Department of Biochemistry, East Carolina University School of Medicine, Greenville, NC, 1998.

Hu, Z. and J.M. Lawler. Xanthine oxidase-induced oxidant challenge in the unfatigued rat

diaphragm: time and dose dependence *in vitro*. *Medicine and Science in Sports and Exercise*. 29: S27, 1997. Presented at the American College of Sports Medicine meeting, Denver, CO, 1997.

Lawler, J.M., Z. Hu, S. Demaree, and M.B. Reid. Does nitric oxide influence xanthine

oxidase-induced potentiation of low-frequency tension in the unfatigued diaphragm?

*Medicine and Science in Sports and Exercise*, 29: S27, 1997. Presented at the American

College of Sports Medicine meeting, Denver, CO, 1997.

Demaree, S.R., J.M. Lawler, J. Linehan, and M. Delp. Aging alters antioxidant enzyme activities in the aorta from Fischer-344 rats. *FASEB J*. 11: A271, 1997. Presented at the Experimental Biology meeting, New Orleans, LA, 1997.

Lawler, J.M. and Z. Hu. Effect of superoxide dismutase on xanthine oxidase-induced

depression of contractility in the fatigued diaphragm. Abstract: *The Physiologist* . 39: A-15, 1996. Presented at The Physiological Society meeting, Vancouver, CAN, 1996.

O'Kroy, J.A., J.M. Lawler, J. Stone, and T.G. Babb. Airflow limitation and regulation of end expiratory lung volume during exercise. Abstract: *Medicine and Science in Sports and Exercise*. 28: S88, 1996. Presented at the American College of Sports Medicine meeting, Cincinnati, OH, 1996.

Hu, Z., J.M. Lawler, J.S. Green, S.F. Crouse, P.W. Grandjean, and R.G. Bounds. Effect of estrogen replacement and exercise on HDL lipid peroxidation. Abstract: *Medicine and Science in Sports and Exercise*. 28: S96, 1996. Presented at the American College of Sports Medicine meeting, Cincinnati, OH, 1996.

Lawler, J.M., C.C. Cline, and W. Cooke. Effect of xanthine oxidase-induced oxidative stress on contractile function of unfatigued diaphragm fiber bundles from 4 and 25 month old Fischer-344 rats. Abstract: *The FASEB Journal*. 9: A972, 1995. Presented at the Experimental Biology meeting, Washington DC, 1995.

Gonzalez, J., J.R. Coast, H.G. Welch, and J.M. Lawler. The energetics of restrictive breathing. Abstract: *Medicine and Science in Sports and Exercise*. 27: S242, 1995. Presented at the American College of Sports Medicine meeting, Minneapolis, MN, 1995.

Lawler, J.M.Oxygen radical effects on the diaphragm. Paper presented in symposium at the Baylor College of Medicine: *Oxygen Radicals and Nitric Oxide in the Respiratory Muscles*, Houston, TX, 1994.

Lawler, J.M., C.C. Cline, and W.S. Barnes. Effect of xanthine oxidase-induced free radical

stress on K+ contractures in the rat diaphragm. Abstract: *Medicine and Science in Sports*

*and Exercise*. 26: A193, 1994. Presented at the American College of Sports Medicine

meeting, Indianapolis, IN, 1994.

Lawler, J.M.Oxygen, friend and foe: understanding its effect on the diaphragm.

The Human Factors & Ergonomics Graduate Seminar. Dept. of Industrial Engineering, Texas A&M University, 1994.

Lawler, J.M. and C.C. Cline. Exogenous free radical stress alters diaphragm contractility in 25 month old Fischer-344 rats. *The FASEB Journal*. 8(4): A307, 1994. Presented at the Experimental Biology meeting, Anaheim, CA, 1994.

Lawler, J.M. Effect of free radical stress on diaphragm fatigue. Graduate Seminar. Dept. of

Internal Medicine. University of Texas Southwestern Medical School, Dallas, TX, 1994.

Cline, C.C., J.M. Lawler, J.A. O'Kroy, and J.R. Coast. Effect of inhaled gas and LBNP release on ventilatory responses. Abstract: *Medicine and Science in Sports and Exercise*. 24: S113, 1993. Presented at the American College of Sports Medicine meeting, Indianapolis, IN, 1993.

Lawler, J.M. Free radical stress and the diaphragm. Texas A&M/University of Texas Exercise

Science Research Symposium, College Station, TX, 1993.

Lawler, J.M., C.C. Cline, and J.R. Coast. Effect of acidosis on xanthine oxidase-induced alterations in diaphragm contractility. Abstract: *The FASEB Journal*. 7: A222, 1993. Presented at the Experimental Biology meeting, New Orleans, LA, 1993.

Powers, S.K., D. Criswell, J. Lawler, D. Martin, L. Ji, R. Herb, and G. Dudley. Training-induced increases in oxidative and antioxidant enzyme activity in the diaphragm: influence of exercise intensity and duration. Abstract: *The FASEB Journal*. 7: A452, 1993.

Presented at the Experimental Biology meeting, New Orleans, LA, 1993.

Cline, C.C., J.M. Lawler, and J.A. O'Kroy. Effect of inhaled gas and head-down tilt on ventilatory responses. Abstract: *The Physiologist*. 35: A229, 1992. Presented at the American Physiological Society meeting, New Orleans, LA, 1992.

Lawler, J.M., S.K. Powers, T. Visser, H. Van Dijk, M. Kordus, and L. Ji. Metabolic and

antioxidant enzyme alterations are age and skeletal muscle specific with acute exercise in

rats. Abstract: *Medicine and Science in Sports and Exercise*. 24: S107, 1992. Presented

at the American College of Sports Medicine meeting, Dallas, TX, 1992.

Dodd, S., S. Powers, J. Lawler, D. Criswell, and F. Lieu. Aging and diaphragmatic oxidative and antioxidant enzyme activity. Abstract: *The FASEB Journal.* 6: A2033, 1992.

Presented at the Experimental Biology meeting, Washington DC, 1992.

Tumer, N., C. Hale, J. Lawler, D. Lowenthal, and R. Strong. Effect of exercise and age on

tyrosine hydroxylase gene expression in the adrenal medulla. Abstract: *The FASEB Journal,* 5: A1734, 1991. Presented at the FASEB meeting, Atlanta, GA, 1991.

Lawler, J.M., S.K. Powers, D. Criswell, R. Talmadge, and H. Silverman. Gender metabolic

differences in the diaphragm of the adult Sprague-Dawley rat. Abstract: *The FASEB Journal,* 5: A1744, 1991. Presented at the FASEB meeting, Atlanta, GA, 1991.

Criswell, D.S., S. Powers, S. Grinton, J. Lawler, W. Edwards, and S. Dodd. Cellular oxidative

and antioxidant response in skeletal muscle to interval and continuous exercise training. Abstract: *Medicine and Science in Sports and Exercise*. 23: S148, 1991. Presented at the American College of Sports Medicine meeting, Orlando, FL, 1991.

Hammeren, J., S. Powers, J. Lawler, D. Criswell, D. Martin, D. Lowenthal, and M. Pollock.

Effects of endurance training on oxidative and antioxidant enzymes in skeletal muscle in

young and aging rats. Abstract: *Medicine and Science in Sports and Exercise.* 23: S148,

1991. Presented at the American College of Sports Medicine meeting, Orlando, FL, 1991.

Lawler, J.M., J. Hammeren, S. Powers, and A.D. Martin. Oxygen cost of treadmill running in senescent and young adult female Fischer-344 rats. Abstract: *Medicine and Science in Sports and Exercise*. 23: S99, 1991. Presented at the American College of Sports Medicine meeting, Orlando, FL, 1991.

Powers, S., J. Lawler, D. Criswell, F. Lieu, and D. Martin. Aging and endurance training- induced cellular alterations in oxidative and antioxidant enzymes in respiratory muscles. Abstract: *Medicine and Science in Sports and Exercise*. 23: S97, 1991. Presented at the American College of Sports Medicine meeting, Orlando, FL, 1991.

Grinton, S.F., S.K. Powers, J. Lawler, D. Criswell, W. Edwards, and S. Dodd. Endurance

training-induced cellular alterations in inspiratory and expiratory muscles. Abstract:

*American Review of Respiratory Disease*. 143: A566, 1991. Presented at the American

Thoracic Society meeting, 1991.

Powers, S.K., S. Grinton, J. Lawler, D. Criswell, W. Edwards, and S. Dodd. Interval treadmill

training-induced metabolic alterations in respiratory muscles. Abstract: *The Physiologist.*

33: A-74, 1990. Presented at the American Physiological Society meeting, 1990.

Criswell, D.S., S.K. Powers, J. Lawler, J. Tew, S. Dodd, Y. Iyriboz, R. Tulley and K. Wheeler.

Influence of a carbohydrate-electrolyte beverage on performance and blood homeostasis during football. Abstract: *The Physiologist*. 33: A-74, 1990. Presented at the

American Physiological Society meeting, 1990.

Powers, S.K., J. Lawler, D. Criswell, S. Dodd, S. Grinton, D. Ayers, and H. Silverman. Exercise-induced cellular alterations in respiratory muscles. Abstract: *Medicine and Science in Sports and Exercise*. 22: S70, 1990. Presented at the American College of Sports Medicine meeting, Salt Lake City, UT, 1990.

Lawler, J., S. Powers, and D. Criswell. Utility of NADP-specific isocitrate dehydrogenase as

an oxidative marker in skeletal muscle and heart. Abstract: *Medicine and Science in Sports and Exercise*. 22: S68, 1990. Presented at the American College of Sports Medicine meeting, Salt Lake City, UT, 1990.

Powers, S., J. Lawler, D. Criswell, S. Dodd, and H. Silverman. Age related enzymatic

changes in the rat diaphragm. Abstract: *The FASEB Journal.* 4: 292A, 1990. Presented at

the FASEB meeting, Anaheim, CA, 1990.

Lawler, J.M. Plasticity of respiratory muscles: effects of endurance training. University of Florida/Florida State University Exercise Science Research Symposium, Gainesville, FL, 1990.

Powers, S., J. Lawler, D. Criswell, H. Silverman, H.V. Forster, S. Grinton, and D. Harkins.

Regional metabolic differences in the rat diaphragm. Abstract: *Physiologist*. 32: 193,

1989. Presented at the American Physiological Society meeting, Rochester, MN, 1989.

Lawler, J., S. Powers, S. Dodd, R. Tulley, G. Landry, and K. Wheeler. Fluid replacement drinks during heavy exercise: effects on minimizing exercise-induced disturbances in homeostasis. Abstract: *Physiologist*. 32: 230, 1989. Presented at the American Physiolgocial Society meeting, Rochester, MN, 1989.

Iyriboz, Y., S. Powers, J. Morrow, J. Lawler, P. Rome, and D. Ayers. Accuracy of pulse oximeters (Ohmeda 3700, Radiometer) in estimating heart rate at rest and during exercise. Abstract: *Medicine and Science in Sports and Exercise*. 21: S18, 1989. Presented at the American College of Sports Medicine meeting, Baltimore, MD, 1989.

Lawler, J., D. Criswell, and S. Powers. Method for disruption of mitochondria in rat diaphragm. Abstract: *Medicine and Science in Sports and Exercise*. 21: S70, 1989. Presented at the American College of Sports Medicine meeting, Baltimore, MD, 1989.

Lawler, J.M. Induciblity of the diaphragm to exercise training. Florida/Florida State University

Exercise Science Research Symposium, Tallahasee, FL, 1989.

Powers, S., S. Dodd, J. Lawler, D. Ayers, and D. Criswell. Evidence for an alveolar-

arterial O2 gradient (A-a DO2) threshold during exercise. Abstract: *Proceedings of the Southeastern American College of Sports Medicine*, 1989. Paper presented by S. Powers

at SEACSM meeting, Atlanta, 1989.

Deason, J., S. Powers, J. Lawler, D. Ayers, and M.K. Stuart. Physiological correlates to 800

meter running. Abstract: *Proceedings of the Southeastern American College of Sports Medicine*, 1989. Paper presented at SEACSM meeting, Atlanta, 1989.

Dodd, S., S. Powers, J. Lawler, G. Landry, M. Kirtley, T. McKnight and S. Grinton. Exercise induced hypoxemia in elite athletes. Abstract: *Medicine and Science in Sports*

*and Exercise*. 20: S47, 1988. Presented at the American College of Sports Medicine meeting, Dallas, TX, 1988.

Powers, S., J. Lawler, S. Dodd, G. Landry and J. Dempsey. Pulmonary gas exchange limits

VO2 max in elite athletes. Abstract: *Medicine and Science in Sports and Exercise*. 20:

S81, 1988. Presented at the American College of Sports Medicine meeting, Dallas, TX,

1988.

Dodd, S., S. Powers, J. Lawler, G. Landry, M. Kirtley, T. McKnight and S. Grinton. Exercise

induced hypoxemia in elite athletes. Abstract: *Medicine and Science in Sports and*

*Exercise*. 20: S47, 1988. Presented at the American College of Sports Medicine meeting,

Dallas, TX, 1988.

Landry, G., J. Lawler, B. Baker, and S. Dodd. Accuracy of pulse oximetry. Abstract: *Proceeding of the Southeastern American College of Sports Medicine*, 1988. Paper presented by G. Landry at SEACSM meeting, Winston-Salem, NC, 1988.

Powers, S., J. Lawler, and R. Beadle. Temporal changes in arterial O2 content during exercise in the pony: effect of work rate. Abstract: *Medicine and Science in Sports and Exercise*. 19: S80, 1987. Presented at the American College of Sports Medicine meeting, Las Vegas, NV, 1987.

Dodd, S., S. Powers, G. Landry, and J. Lawler. The effects of ventilatory work on

subsequent exercise performance. Abstract: *Medicine and Science in Sports and*

*Exercise*. 19: S80, 1987. Presented at the American College of Sports Medicine meeting,

Las Vegas, NV, 1987.

Lawler, J., S. Powers, and D. Thompson. Exercise gas exchange impairment during acute hypoxia. Abstract: *Medicine and Science in Sports and Exercise*. 19: S7, 1987. Presented at the American College of Sports Medicine meeting, Las Vegas, NV, 1987.

Landry, G., J. Lawler, and S. Powers. Effects of oral breathing vs. combined suboral/nasal breathing on ventilation and gas exchange during submaximal exercise. Abstract: *Proceedings of the Southeastern American College of Sports Medicine*, 1987. Paper presented by G. Landry at SEACSM meeting, Charleston, SC, 1987.

Powers, S. J. Lawler, D. Thompson, and R. Beadle. Measurement of gas exchange in the

non-steady-state. Abstract: *Physiologist*. 29: 140, 1986. Presented at the American Physiological Society meeting, 1986.

Powers, S., R. Beadle, D. Thompson, and J. Lawler. Ventilatory and blood gas dynamics in

the pony at the onset of exercise. Abstract: *Medicine and Science in Sports and Exercise*.

18: S116, 1986. Presented at the American College of Sports Medicine meeting, 1986.

Lawler, J., S. Powers, and S. Dodd. Peak oxygen uptake in cycle ergometry: effects of testing protocol. Abstract:  *Proceedings of the Southeastern American College of Sports Medicine*, 1986. Paper presented at annual SEACSM meeting, Athens, GA, 1986.

Powers, S., R. Beadle, J. Lawler, and D. Thompson. Oxygen deficit-debt relationships in ponies during submaximal exercise. Abstract: *Federation Proceedings*. 45: 647, 1986. Presented at the FASEB meeting, Washington DC, 1986.

**TEXTBOOK**

Lawler, JM. Lawler, John M. “Applied and Exercise Biomechanics for Today and Tomorrow’s World.” McGraw-Hill. *In Preparation*, 2018.

**Administrative Roles:**

**Director, Redox Biology & Cell Signaling Laboratory**: My independent laboratory has been focused on mechanisms by which reactive oxygen species (ROS) and nitric oxide in normal biological function and disease in skeletal muscle and the heart. We are currently investigating mechanisms involved and therapeutic development in spaceflight/disuse, radiation, Duchenne muscular dystrophy, and aging models. Our laboratory has been supported by NASA, NSBRI, NIH, NSF, DOD, the American Heart Association, and the American Lung Association. Assembly of NADPH oxidase-2 (Nox2), loss of sarcolemmal nNOS during myopathy, and fibrosis, remodeling of heart and skeletal muscle after exposure to heavy ion radiation are the targets of current research.

**Director, Exercise Biomechanics Teaching Laboratory**: Over the course of over 25 years I built a teaching laboratory in exercise biomechanics from virtually scratch, negotiating for new CIP codes and the use of undergraduate and graduate student laboratory fees and grants to procure teaching and research technology. The EBTL includes digital video cameras, digital video recorders, motion analysis software, anatomy modules, portable and fixed force/pressure plates, Biodex joint torque analysis and equilibrium systems, power measurement and analysis, and EMG system technology as well as demonstration laboratory using Instron machines for material properties of bones and soft connective tissue. We were the first student-centric (teaching) biomechanics laboratory to use digital video analysis, commencing in 1998. Laboratory modules and a course research project revolve around data collection and scholarship. Writing intensive status is expected in 2019 for associated courses.

**Chair, Graduate Admissions in Kinesiology:** Duties include managing MS track admissions process and meetings in Kinesiology, assembling admissions packets, directly prospecting MS and PhD students towards mentors, coordinating with the Graduate Chair’s office on application packets, setting and overseeing graduate admissions meeting dates and forwarding results to the Graduate Office. Coordinate with Graduate Office and faculty of admission deadlines and procedures.

**Chair, Graduate Assessment in Kinesiology:** Responsible for setting and quantifying Mission/Goals, Objectives, Measures & Findings, Action Plan Tracking, Analysis and Achievement summaries. Conduct yearly assessment of MS and PhD programs in Exercise Science/Kinesiology, record outcomes and analyze progress.

**Chair, University CAFRT Committee:** Oversee grievance filings and coordinate hearings, multidisciplinary committees, hearing outcomes and reports to the Provost’s Office.

**Director: Exercise Physiology Graduate Program:** Correspond with prospective MS and PhD students, manage website content, coordinate the Graduate Office and Graduate Faculty on requirements for each degree track and communication.

**SELECTED RECENT PROPOSAL ACTIVITY**

NASA HERO (Omnibus) “New Countermeasure Development to Mitigate Skeletal Muscle Atrophy During Microgravity: Integrating Mechano- and Nutrient-sensing. JM Lawler (PI) $100,000, 2018-2019.

NASA HERO (Omnibus) “Redesigning the aRED Leg Press Module to Reduce Shear and Compressive Stress on the Cervical Spine.” JM Lawler (PI), Harry Hogan (CoI) $100,000, 2018-2019.

NASA (Translational Research Institute) Post-doctoral Fellowship: “Upstream Regulation of Nox2 and Skeletal Muscle Atrophy During Microgravity and Countermeasure Development.” JM Lawler (mentor), V Guzzoni (Mentee), JD Fluckey (CoI), P Nghiem (CoI). $1,200,000, 2017-2020.

NASA (HERO – Space Radiobiology) “Radiobiology of Cardiovascular Disease when Space Radiation and Microgravity are Combined: Targeting Secondary Oxidative Stress and NADPH Oxidase-2 Signaling in Astronaut-age Rodents.” JM Lawler (PI), J Ford (CoI), M Muthuchamy (CoI), C Woodman (CoI) JT Lightfoot (CoI). $1,350,000, 2018-2021.

NASA (Translational Research Institute) “Preserving Skeletal Muscle Morphology in Ground-based Microgravity with FDA Approved Interventions: Targeting Oxidative Stress, Astronaut Age, and Synergism with Exercise.” JM Lawler (PI), N. Deutz (CoI), JD Fluckey (CoI), P Nghiem (CoI). $1,200,000, 2017-2020.

NIH - R21 “Nox2 Disrupts nNOSµ in the *mdx* Mouse Diaphragm and Heart.” JM Lawler (PI), J Kornegay (CoI), P Nghiem (CoI), M Muthchamy (CoI) $275,000, 2017-2019.

NSF Research Grant Application (Preliminary Proposal) “Redox Regulation of the nNOS-mu During Unloading: A New Paradigm of Mechanotransduction in Skeletal Muscle” JM Lawler (PI) $350,000, 2017-2020. *In Revision.*

NIH Omnibus TEXAS A&M MOTRPAC Preclinical Animal Study Site

Tim Lightfoot (PI), JM Lawler CoI, 6 others, $600,000, 2016-2021.

American Heart Association - Southwest Affiliate “Nox2 Regulation of nNOSµ in the Dystrophin-Deficient Heart.” JM Lawler (PI), J Kornegay (CoI), P Nghiem (CoI), M Muthchamy (CoI) $140,000, 2017-2019.

NIH R01 (NIAMS) “GLUT-4 Modulation in Golden Retriever Muscular Dystrophy Dogs” Peter Nghiem, JN Kornegay (CoI), JM Lawler (CoI), $1,250,000, 2016-2021.

Muscular Dystrophy Association – Research Grant “Nox2 Disrupts nNOSµ in the *mdx* Mouse Heart.” JM Lawler (PI), J Kornegay (CoI), P Nghiem (CoI), M Muthchamy (CoI) $302,882, 2017-2019.

DOD DMDRD Program (Duchenne Muscular Dystrophy Research Development)

Nox2 Regulation of nNOSµ in the *mdx* Mouse Heart. JM Lawler (PI), J Kornegay (CoI), P Nghiem (CoI), M Muthuchamy (CoI) $600,000 Total Costs, 2017-2020.

DOD (Broad Agency Announcement) U.S. Army Medical Research and Materiel Command (USAMRMC): Translating Novel Antioxidant Interventions to Preserve Sarcolemmal nNOS and Reduce Skeletal Muscle Atrophy During Disuse and Recovery. JM Lawler (PI), N Deutz (CoI), Y Sun (CoI), H Hogan (CoI). $1,130,839 Direct Costs, 2017-2020.

AFAR (American Federation for Aging Research) “Failure of nNOSµ Mechano-transduction and Sarcopenia: Chronic Physical Inactivity and Aging. JM Lawler (PI), Dongsheng Duan (CoI), Pre-application Approved, Full Application submitted, 2016-2018, $200,000.

NASA – JSC “Scaling of Partial Loading Countermeasure Against Nox2 Elevation, Remodeling, and Functional Impairment of Skeletal Muscle and Bone during Microgravity.” John Lawler (PI), Harry Hogan (CoI), Yasaman Shirazi-Fard (CoI), Jerry Feng (CoI), 2016-2018. $950,000.

**Muscular Dystrophy Association** “Regulation of Annexin-6 and Nox2 in the Dystrophin-deficient Diaphragm.” JM Lawler (PI), JT Lightfoot (CoI), J Kornegay (CoI). 2016-2019, $389,500.

**NIH (R01)** “Genetic Regulation of Protein Expression Regulating Activity from Muscle.” Lightfoot, TJ (PI), JM Lawler (CoI), W. Porter (CoI). 2016-2021, $1,250,000. *Revising*

**NIH (R21)** “Regulation of Nox2 and Skeletal Muscle Atrophy during Mechanical Unloading” JM Lawler (PI), JT Lightfoot (CoI), 2015-2017, $275,000. *Revising.*

**NIH (R21)** “Regulation of Annexin-6 and Nox2 in the Dystrophin-deficient Diaphragm Muscle.” JM Lawler (PI), JT Lightfoot (CoI), J. Kornegay (CoI). 2016-2018, $275,000. *Revising*

**NASA (Space Biology Program) NNH14ZTT002N NRA** John Lawler (PI), R Chapkin, L Dangott, N. Deutz, I. Ivanoff, M. Massett, W. Porter, S. Talcott, N. Turner, C. Woodman, B. Zhou. (CoIs) “Mechanosensing and Pro-inflammatory Signaling During Spaceflight: an -Omics Approach to Understanding Biological Adaptations” 2014-2017. $2,000,000 total costs.

**GRADUATE ADVISEE HONORS/AWARDS**

**Jeff Hord.** 2016. Distinguished Honors Graduate. College of Education and Human

Development.

**Jeff Hord.** 2016. Environmental & Exercise Physiology (EEP) section of the American Physiological Society (APS).2016 EEP's Gatorade Sport Science Institute Predoctoral Research Award. $600.

**Jeff Hord**. 2016. Texas Affiliate of the American College of Sports Medicine. First Place: Student Research Manuscript Award, “Protection of nNOS by lifelong mild caloric restriction and wheel running.” $300.

**Jeff Hord.** 2015. Texas Chapter of the American College of Sports Medicine. Doctoral Student Research Development Award.

**Erika Garcia-Villatoro** 2014-2015. Department of Nutrition & Food Science. Texas

A&M University. Graduate Research Fellowship**.** $5000.

**Yang Lee**: 2014. ACSM Doctoral Student Research Grant. “Nox2 Regulation in

Muscle Atrophy during Disuse.” American College of Sports Medicine. $5000.

**Jeff Hord:** 2014-2016. CEHD Graduate Research Fellowship, Texas A&M

University.

**Jeff Hord:** 2013-2014. Huffines’ Institute Student Grant. Role of Microtubules on Nox2 in the Rat Soleus with Hindlimb Unloading, $1500.

**Jeff Hord**: 2014 Texas Chapter of the American College of Sports Medicine. Doctoral Student Research Development Award.

**Yang Lee**: 2014. Texas Chapter of the American College of Sports Medicine. Doctoral Student Research Development Award.

**Yang Lee:** 2013-2014. Huffines’ Institute Student Grant. Role of Nox2 in Diaphragm Pathology with Duchenne Muscular Dystrophy, $1500.

**Rachel Botchlett** 2013. Young Investigator Award. Diet and Optimum Health

Conference, Linus Pauling Research Institute. Corvallis, Oregon.

**Rachel Botchlett** 2012-2013. Huffines’ Institute Student Grant. The effects of a combination treatment of fish oil and curcumin on reducing unloading-induced atrophy, $1500.

**Jeff Hord** 2012. NASA Space Physiology Student Research Grant. “Upstream

Triggers of NADPH Oxidase during Disuse.” American College of Sports Medicine.

$5000.

**Yang Lee** 2012-2013. CEHD Graduate Research Fellowship, Texas A&M University.

**Yang Lee** 2012. 2nd Place. Doctoral Research Award. Texas Affiliate of the

American College of Sports Medicine.

**Rachel Botchett.** 2012. 1st place - graduate, Health/Nutrition/ Kinesiology/Physiology subject area. EUK-134 Reduces Age-induced Loss of nNOSµ from the Sarcolemma. Student Research Week. Texas A&M University

**Rachel Botchett.** 2012. 1st place - graduate, Sigma Xi Theme area (Damage & Repair). Student Research Week. Texas A&M University.

**Jeff Hord:** 2011-2012. Huffines’ Institute Student Grant. Role of NAD(P)H Oxidase derived Reactive Oxygen Species in the Regulation of TRPC Channels in the Sarcolemma Following Short-term Mechanical Unloading, $2500.

**Yang Lee:** 2010-2011. Huffines’ Institute Student Grant. Twelve Weeks of Endurance Exercise Training Reduces Aging-dependent Heart Remodeling by Downregulating Angiotensin II and NAD(P)H Oxidase, $2500.

**Jeff Hord:** 2010-2011. Huffines’ Institute Student Grant. Role of NAD(P)H Oxidase derived Reactive Oxygen Species in the Regulation of TRPC Channels in the Sarcolemma Following Short-term Mechanical Unloading, $2500.

**Yang Lee:** 2010-2011. Conoley Fellowship. Texas A&M University. $2500

**Yang Lee:** 2010-2011. Lamar Bruni Vergara Educational Scholarship, Texas A&M International University, $5000

**Kumar Joshi:** 2009-2010. Regents’ Fellowship. Texas A&M University. $5000

**Brandon Macias**: 2009-2010. ACSM/NASA Award. Oxidative stress regulation

of muscle atrophy with hindlimb unloading. $5000.

**Jong-hee Kim:** 2009. 1st Place; Doctoral Research Poster “Effect of NAD(P)H inhibition on matrix metalloproteinases and TIMP-1.” Texas ACSM Meeting

**Jong-hee Kim:** 2008-2009. Graduate Student Research Grant in Sydney and J.L. Huffines Institute for Sports Medicine and Human Performance at Texas A&M University. The effect of superoxide dismutase/catalase mimetics (EUK-134) on the activation of nuclear factor-kappaB (NF-B) in the diaphragm of mdx mice. $2,000

**Brandon Macias:** 2008-2010. Space Life Science Fellowship. National Space Biomedical Research Institute, NASA, $40,000.

**Claire Canon:** 2008-2009.Regents’ Fellowship. Department of Health & Kinesiology. Texas A&M University. $6333

**Jong-hee Kim:** 2005 International Student Education Study Grant, $500.

**Jong-hee Kim:** 2007-2008. Graduate Student Research Grant in Sydney and J.L. Huffines Institute for Sports Medicine and Human Performance at Texas A&M University. The effect of exercise training on the doxorubicin-induced cardiomyocyte damage in aging Fisher 344- brown-Norway F1 rats. $2,000.00

**Hyo-Bum Kwak:** 2007 Doctoral Student Research Development Award. Texas American

College of Sports Medicine meeting, “Exercise Training Regulation of Extracellular Matrix

Remodeling in the Aging Rat Heart.” $1200.

**Hyo-Bum Kwak:** 2007 Environmental & Exercise Physiology Section Predoctoral

Gravitational Physiology Award, the American Physiological Society, Experimental Biology ’07

meeting. “Reloading-induced alterations in IGF-1 and HSP70 signaling in the rat soleus

following prolonged hindlimb unloading.” $600.

**Jong-hee Kim:** 2007 Education Research Exchange – 1st Place, PhD Division, Texas A&M University College of Education & Human Development, $200.

**Jong-hee Kim:** 2006-2007. Graduate Student Research Grant in Sydney and J.L. Huffines Institute for Sports Medicine and Human Performance at Texas A&M University. Apoptosis and IGF-1 signaling pathway in the plantaris of aging Fischer-344 rat: Effect of 8% caloric restriction and voluntary wheel running exercise. $2,000.00

**Hyo-Bum Kwak**: 2006 Texas Chapter of the American College of Sports Medicine. Second Place: Doctoral Level Poster Award, “Reloading-induced Alterations in p-HSP25, NF-B, and iNOS Signaling in the Rat Soleus Following Prolonged Hindlimb Unloading,” $300.

**Hyo-Bum Kwak**: 2005 Texas Chapter of the American College of Sports Medicine. First Place: Student Research Manuscript Award, “Exercise Ameliorates Apoptosis and Caspase-3 Cleavage in the Aging Heart,” $300.

**Hyo-Bum Kwak**: 2005 International Student Education Study Grant, $500.

**Hyo-Bum Kwak:** 2004 Tuition Fellowship in College of Education and Human Development at Texas A&M University, $3000

**Hyo-Bum Kwak:** 2004 Student Research Week – Texas A&M University. First Place: Life Science Division: "Exercise Training Reverses Apoptotic Signaling in the Aging Heart" $200.

**Hyo-Bum Kwak:**  2004 Master’s Level Student Manuscript: First Place. Texas Affiliate of the American College of Sports Medicine. "Effect of Exercise Training on Apoptotic Signaling in the Aging Rat Heart" $500.

**Wook Song:** 2004 American Physiological Society. The Environmental and Exercise Physiology Section of FASEB; Graduate Student Military Physiology Award “Exercise Reverses iNOS and Apoptotic Signaling in Aging Skeletal Muscle.” $600.

**Jiang-hui Li:** 2004Doctoral Student Poster Award: Second Place. Texas Affiliate of the American College of Sports Medicine. "Inhibition of NAD(P)H oxidase Ameliorates Skeletal Muscle Bcl-2 Family Apoptotic Signaling in *mdx* Mice” $500.

**Wook Song**: 2003 Glenn/AFAR Scholarships for Research in the Biology of Aging. “Effect of Exercise Training on Age-induced Upregulation of the iNOS Signaling Pathway in Skeletal Muscle.” $5000.

**Wook Song:**  2003 Doctoral Student Manuscript: Second Place. Texas Affiliate of the American College of Sports Medicine. "Hindlimb Unloading Increases iNOS Protein Expression and NF-kappaB DNA Binding Activity in Rat Skeletal Muscle." $500.

**Hyo-Bum Kwak:** 2003.Masters Student Poster Award: Second Place. Texas Affiliate of the American College of Sports Medicine. " NF-kappaB Activity and iNOS Protein Expression are Upregulated in Skeletal Muscle of mdx Mice.” $500.

**Wook Song:** 2003 The Korean Honor Scholarship, the Embassy of Korea.

**Wook Song:**  2003 American Physiological Society - "Recognition Award of the Environmental & Exercise Physiology Section of the American Physiological Society, 2003." $500 cash award + registration.

**Wook Song:** 2002 American College Of Sports Medicine - ACSM Foundation Research Grant. “Exercise Training Reverses Age-induced iNOS Upregulation.” $5000.

**Wook Song:** 2002 American College Of Sports Medicine - NASA Space Physiology Research Grant. “Oxidative Stress During Hindlimb Suspension.” $2500.

**Wook Song:** 2002 Doctoral Student Poster Award: First Place. Texas Affiliate of the American College of Sports Medicine. "Exercise Training Attenuates Age-induced iNOS Upregulation."

**Wook Song:** 2002 Student Research Week – Texas A&M University. Life Science Division: Second Place. "Exercise Training Attenuates Age-induced iNOS/nNOS ratio"

**Wook Song:** 2002 Educational Research Exchange (College of Education) HLKN Abstract Award, “Effect of Aging and Exercise Training on iNOS Protein Expression” $100.

**Wook Song:** 2002 Educational Research Exchange (College of Education). Best Overall ERE Presentation, “iNOS and Aging in Skeletal Muscle” $300.

**Wook Song:** 2001 Student Research Development Award. Texas Affiliate of the American College of Sports Medicine. "Impact of Aging on Gene Expression of Nitric Oxide Synthase and Cytoskeletal Proteins in Rat Skeletal Muscle" $500

**Wook Song:**  2000Appala Scholarship, Texas A&M University.

**Wook Song**: 2000-2001 International Education Scholarship, Texas A&M University.

**Scott Demaree**: 1998 Regents’ Fellowship, Texas A&M University $15,000.

**POSTDOCTORAL FELLOWS**

**J. Matthew Kuczmarski:** NSBRI First Award Fellow. 2013-2015

**INTERNATIONAL SCHOLARS**

**Mariana Janini Gomes** - Visiting International Research Fellow, FAPESP Program, Botucatu School of Medicine, São Paulo State University, Botucatu, BRAZIL, 2017

**Vinicius Guzzoni** – Visiting International Research Scholar CAPES Program, UFSCAR, São Carlos, BRAZIL, 2014-2015

**Min-Hwa Suk –** Visiting International Research Fellow – Seoul National University, 2005-2006

**ADVISED GRADUATE THESES/DISSERTATIONS**

**Camala C. Cline** - "The Effect of Restrictive Chest Wall Loading on Pulmonary Function and Maximal Exercise Performance", PhD, 1994.

**Juan Gonzalez** - "The Energetics of Restrictive Breathing," PhD, 1995.

**Joseph A. O'Kroy** - "Airflow Limitation and Regulation of End Expiratory Lung Volume During Exercise,” PhD, 1995.

**Wook Song -**  “Exercise Training Reverses Age-induced Upregulation of Inducible Nitric Oxide Synthase,” PhD, 2003.

**Hyo-Bum Kwak –** “Exercise Training Ameliorates Pro-apoptotic Signaling in the Rat Heart,” MS, 2004.

**Hyo-Bum Kwak** – “Exercise Training Regulation of the Extracellular Matrix and Remodeling,” PhD, 2008

**Jong-hee Kim –** “Effect of Catalase/Superoxide Dismutase Mimetic EUK-134 on Damage, Inflammation, and Force Generation of the Diaphragm Muscle in mdx Mice,” PhD, 2009

**Jeff Hord** “Triggering Nox2 / Ros Signaling During Disuse-induced Skeletal Muscle Atrophy,” PhD, 2016.

**Graduate Faculty - Full Member (Health & Kinesiology)**

**Graduate Faculty – Department of Nutrition & Food Science**

**Graduate Advisees**

Camala Cline, PhD

Joseph O’Kroy, PhD

Juan Gonzalez, PhD

Zhe Hu, MS

Scott Demaree, MS

Wook Song, PhD

Elizabeth Li, MS

Hyo-Bum Kwak, PhD

Jong-hee Kim, PhD

Jeff Hord, MS

Yang Lee

Dinah Rodriguez

Erika Garcia-Villatoro

Sarah Little

Rachel Atchison

Zach Ganger, MS

Dylan Holly

Patrick Ryan

Nathan Keller

**Recent, Current Graduate Committees, Mentorship**

Sarah Little, MS

Dinah Rodriguez, MS

Song Yi Shin, MS

Mats Nilsson, PhD

Michael Wiggs, PhD

Liza George, PhD (University of Houston, Department of Pharmacology)

Jeremy Northrup, PhD (Nuclear Engineering)

Alice Dale (Nuclear Engineering)

Dongyou Lee, PhD (Nuclear Engineering)

Cindy Guo, PhD (Nutrition & Food Science)

Amanda Davis (HLKN)

**International Research Fellows**

Mariana Janini Gomes, FAPESP Fellow, PhD Candidate, Physiopathology in Internal

Medicine, Botucatu Medical School, UNESP, 2017

Vinicius Guzzoni, PhD candidate (Federal University of Sao Carlos – Brazil), 2013-2014

Min-Hwa Suk, PhD (Seoul National University) 2007-2008

**Masters’ Advisees, Scholars**

Sarah Little, MS

Dinah Rodriguez, MS

Zach Ganger, MS

Rachel Atchison, MS

Erika Garcia-Villatoro

Zach Ginnings

Sarah Renaghan, MS

Clay Duval, MS

Ryan Dalton, MS

Hyo-Bum Kwak, MS

Anna May, MS

Kelly Culpeper, MS

Chrisana Brookshier, MS

Song Yi Shin, MS

**Undergraduate Research Scholars**

Chase Green 2018 -

Mary-Catherine Brooks Biology (Aggie Research Scholar) 2017 -

Jennifer Cardona – Biology (Aggie Research Scholar) 2017-

Tarek Dawamme Biology 2017-

Samuel De Los Reyes Biology 2017-

Rebeca Gonzalez – Biology (2016)

Katherine Farris – ANSC (Aggie Research Scholar) (2015-2016)

Kristian Falcon – Biology (Aggie Research Scholar) (2016-2017)

Jessica Scheibe (Aggie Research Scholar) (2016)

Marcela Garcia 2015-2017

Eric Johnson 2015

John Hodges 2014

Matt Johnson 2013-2014

Matthew Lawler (Georgia Tech) 2012-2013, 2015

Chuong Lai 2011-2013

Angelo Ramirez 2011-2012

Tyler Kirklin – 2010-2011

Mary Kunst – 2009-2011

Jessica Cuccio - 2007

Ashlea Edwards - 2006

Brett Hallman - 2006

Joanna Funk - 2006

Biomedical Engineering Senior Research Project - 2005

Matt Pauley - 2005

Erin Glynn - 2005

Jay Linehan - 2000

**TEACHING RESPONSIBILITIES/EXPERIENCE**

**Texas A&M University** - My teaching duties at Texas A&M include undergraduate and graduate Exercise Biomechanics, with emphasis on Tissue Biomechanics, Rehabilitation, and Performance.

**Graduate seminar classes** on redox control of skeletal muscle and cardiovascular function in health and disease. Mechanisms by which oxidative stress regulated cytoskeletal protein function, muscular dystrophy, age-induced sarcopenia had been common topics of journal club seminars.

I have designed, developed and am director of a state-of-the-art Biomechanics Teaching Laboratory using 2-D digital video, forceplate, and EMG analysis interfaced with computer and website technology. This was the first digital video biomechanics teaching laboratory in higher education established in 1999: URL: [http://exbiomech.tamu.edu](http://exbiomech.tamu.edu/)

**University of Florida** - I was a guest lecturer frequently in the following classes: graduate Exercise Physiology, graduate Laboratory Techniques, and Veterinary Physiology.

**Louisiana State University** - My teaching responsibilities included organization and instruction of activity classes. Specifically, I taught Weight Training (12 total sections), Beginning Jogging (2 total sections), and Beginning Golf (2 total sections). Frequently, I gave guest lectures in undergraduate Human Anatomy and graduate Exercise Physiology classes.

**Workshops** – Higher Order Thinking Workshop: Center for Teaching Excellence, Texas A&M University, 2000.

**SERVICE**

**National**

**•** ACSM Pronouncements Committee, 2000-2003

• ACSM Research Advisory Council, 2006-

**Departmental/University**

• University Laboratory Animal Care Committee, 1994-1997

• Search committee for Adapted Physical Education position, 1994

• Search committee for Exercise Physiology position, 1995

• College of Education Research Council, 1997-

• ad-hoc committees in Department of Health and Kinesiology

**Reviewer**: Journal of Experimental Biology, 1993-

Journal of Applied Physiology, 1995-

Canadian Journal of Applied Physiology, 1996-

American Journal of Physiology, 1995-

Comparative Biochemistry and Physiology, 1996-

Circulation, 1997-

Medicine and Science in Sports and Exercise; 1991-

Book Reviewer: Medicine and Science in Sports and Exercise, 1995-

Abstracts for American College of Sports Medicine meeting, 1993,

1995,1996.

Position Stand for Exercise in Aging Populations. American College of

Sports Medicine, 1998.

Age, 1998-

Free Radical Biology & Medicine, 1998-

M.J. Murdock Charitable Trust, 1998-

Journal of Nutrition, 2002-

National Science Foundation, 2002-

Mechanisms of Ageing and Development, 2003-

Antioxidants & Redox Signaling, 2005-

Experimental Physiology, 2005-

Journal of Neuroscience Research, 2006 –

American Journal of Clinical Nutrition, 2006-

Experimental Gerontology, 2007-

Journals of Gerontology, 2007-

Nutrition, 2009-

Experimental Physiology, 2009-

Biol. Chem, 2011-

Proceedings of the National Academy of Sciences, 2012-

**Grant Reviews:**

NIH – Skeletal Muscle & Exercise Physiology section (*ad hoc)* (2004 - )

NIH – K08 Physician Scientist (*ad hoc)* (2010 - )

NIH – DP5 Early Independence Award (2013 - )

NIH – ZRG Study Section (2015 - )

Swiss National Science Foundation (2015 - )

**PROFESIONAL AFFILIATIONS**

American College of Sports Medicine

Texas Chapter - American College of Sports Medicine

American Physiological Society/FASEB

American Heart Association