

## **Ashley J. Smuder, Ph.D.**

**Business Address:** Department of Applied Physiology and Kinesiology  
College of Health and Human Performance  
University of Florida  
PO Box 118205  
Gainesville, FL 32611  
asmuder@ufl.edu

### **EDUCATION**

2008 – 2012 University of Florida, Gainesville, FL  
Ph.D. Exercise Physiology  
Advisor: Scott Powers, Ph.D., Ed.D.

2006 – 2008 University of Florida, Gainesville, FL  
M.S. Exercise Physiology  
Advisor: Scott Powers, Ph.D., Ed.D.

2002-2006 University of Florida, Gainesville, FL  
B.S. Exercise Physiology

### **POST-DOCTORAL TRAINING**

2012 – 2017 University of Florida, Gainesville, FL  
Ph.D. Exercise Physiology  
Advisors: Scott Powers, Ph.D., Ed.D.  
and David D. Fuller, Ph.D.

### **PROFESSIONAL EXPERIENCE**

2019 – present Assistant Professor  
Department of Applied Physiology and Kinesiology  
University of Florida, Gainesville, FL

2017 – 2019 Assistant Professor  
Department of Exercise Science  
University of South Carolina, Columbia, SC

## **A. RESEARCH**

### **RESEARCH FUNDING**

#### **Active:**

R01HL144858

4/1/2019 – 3/31/2024

NIH; R01

“Doxorubicin cardiotoxicity and the protective effects of exercise”

Total direct costs: \$1,213,836

*Role: Principal Investigator*

R01HL146443 5/1/2019 – 4/30/2024  
NIH; R01  
“Doxorubicin-induced respiratory dysfunction and the protective effects of exercise”  
Total direct costs: \$1,240,992  
*Role: Principal Investigator*

APK Research Investment Grant 4/1/2020 – 5/1/2023  
Departmental funds  
“Development of a translational model to study vascular complications of breast cancer chemotherapy”  
Total direct costs: \$25,000  
*Role: co-Principal Investigator*

R01HL53140 8/9/2020 – 7/31/2024  
NIH; R01  
“Hyperbaric oxygen therapy mitigates respiratory neuromuscular pathology after spinal cord injury”  
Total direct costs: \$1,000,000  
*Role: co-Principal Investigator*

21B05 05/01/2021 – 04/30/2024  
FL DOH Bankhead-Coley Cancer Research  
“Ursolic acid as a countermeasure to cancer cachexia”  
Total direct costs: \$530,880  
*Role: Collaborator (5% effort, year 2)*

**Past Support:**

17GRNT33661052 7/1/2017 – 6/30/2019  
American Heart Association; Association Wide Grant-in-Aid  
“Regulation of autophagy in chemotherapy-induced heart failure”  
Total direct costs: \$140,000  
*Role: Principal Investigator*

R01AR0723 07/31/2017 – 05/31/2022  
NIH; R01  
“The effect of intermittent hemidiaphragm stimulation during surgery on mitochondrial function, single fiber contractile force and catabolic pathways in humans”  
Total direct costs: \$1,652,592  
*Role: Co-Investigator (3% effort in year 6)*

**AWARDS**

- Thomas F Hayes Memorial Scholarship - \$1,000 2009
- University of Florida GSA Travel Grant - \$500/year 2009-2012

- NIH T32 Graduate Fellowship 2010-2012
- University of Florida Postdoctoral Research Symposium –  
1<sup>st</sup> place Poster Presentation - \$200 2013
- 8<sup>th</sup> Annual Neuromuscular Plasticity Symposium –  
Poster Presentation Award - \$250 2013
- American Physiological Society – Environmental and  
Exercise Physiology - New Investigator Award - \$1,000 2018
- University of South Carolina ASPIRE-I Junior Faculty  
Development Award Recipient - \$15,000 2019
- Giles F. Filley Memorial Award for Excellence in Respiratory  
Physiology and Medicine - \$16,000 2020
- John F. Perkins, Jr. Research Career Enhancement  
Award - \$19,877 2020
- Experimental Biology and Medicine Outstanding  
Reviewer Award 2020
- University of Florida Alumni Association 40 Gators Under  
40 Awardee 2021
- University of Florida Excellence Award for Assistant Professors 2021

#### **PEER REVIEWED PUBLICATIONS**

1. Turner S, Sunshine MD, Chandran V, **Smuder AJ** and Fuller DD. Hyperbaric oxygen therapy after mid-cervical spinal contusion injury. *J Neurotrauma*. 2022 Feb 12. PMID: 35152735.
2. Fix DK, Counts BR, **Smuder AJ**, Sarzynski MA, Koh HJ and Carson JA. Wheel running improves fasting-induced AMPK signaling in skeletal muscle from tumor-bearing mice. *Physiol Rep*. 2021 Jul;9(14):e14924. PMID: 34270178.
3. Ichinoseki-Sekine N, **Smuder AJ**, Morton AB, Hinkley JM, Mor Huertas A and Powers SK. Hydrogen sulfide donor protects against mechanical ventilation-induced atrophy and contractile dysfunction in the rat diaphragm. *Clin Transl Sci*. 2021 Nov 14;(6):2139-2145. PMID: 34080307.
4. Montalvo RN, Doerr V, Nguyen BL, Kelley RC and **Smuder AJ**. Consideration of sex as a biological variable in the development of doxorubicin myotoxicity and the efficacy of exercise as a therapeutic intervention. *Antioxidants*. 2021 Feb 25;10(3):343. PMID: 33669040.
5. Hall SE, Ahn B, **Smuder AJ**, Morton AB, Hinkley JM, Wiggs MP, Sollanek KJ, Hyatt H and Powers SK. Comparative efficacy of angiotensin II type 1 receptor blockers against ventilator-induced diaphragm dysfunction in rats. *Clin Trans Sci*. 2021 Mar;14(2):481-486. PMID: 33222389.
6. Montalvo RN, Doerr V, Kwon OS, Talbert EE, Yoo JK, Hwang MH, Nguyen BL, Christou DD, Kavazis AN and **Smuder AJ**. Protection against doxorubicin-induced cardiac dysfunction is not maintained following

- prolonged autophagy inhibition. *Int J Mol Sci.* 2020 Oct 30;21(21):8105. PMID: 33143122.
7. **Smuder AJ**, Roberts BM, Wiggs MP, Kwon OS, Yoo JK, Christou DD, Fuller DD, Szeto HH and Judge AR. Pharmacological targeting of mitochondrial function and reactive oxygen species production prevents colon 26 cancer-induced cardiorespiratory muscle weakness. *Oncotarget.* 2020 Sep 22;11(38):3502-3514. PMID: 33014286.
  8. **Smuder AJ**, Turner SM, Schuster CM, Morton AB, Hinkley JM and Fuller DD. Hyperbaric oxygen treatment following mid-cervical spinal cord injury preserves diaphragm muscle function. *Int J Mol Sci.* 2020 Sep 30;21(19):7219. PMID: 33007822.
  9. Doerr V, Montalvo RN, Kwon OS, Talbert EE, Hain BA, Houston FE and **Smuder AJ**. Prevention of doxorubicin-induced autophagy attenuates oxidative stress and skeletal muscle dysfunction. *Antioxidants.* 2020 Mar 23;9(3):263. PMID: 32210013.
  10. Judge SM, Deyhle MR, Neyroud D, Nosacka RL, D'Lugos AC, Comeron ME, Vohra RS, **Smuder AJ**, Roberts BM, Callaway CS, Underwood PW, Chrzanowski SM, Batra A, Murphy ME, Heaven JD, Walter GA, Trevino JG and Judge AR. MEF2c-dependent downregulation of Myocilin mediates cancer-induced muscle wasting and associates with cachexia in cancer patients. *Cancer Res.* 2020 May 1;80(9):1861-1874. PMID: 32132110.
  11. Huertas AM, Morton AB, Hinkley JM, Ichinoseki-Sekine N, **Smuder AJ**. Modification of neuromuscular junction protein expression by exercise and doxorubicin. *Med Sci Sports Exerc.* 2020 Jul;52(7):1477-1484. PMID: 31985575.
  12. Montalvo RN, Doerr V, Min K, Szeto HH and **Smuder AJ**. Doxorubicin-induced oxidative stress differentially regulates proteolytic signaling in cardiac and skeletal muscle. *Am J Physiol Regul Integr Comp Physiol.* 2020 Feb 1;318(2):R227-R233. PMID: 31774307.
  13. **Smuder AJ**. Exercise stimulates beneficial adaptations to diminish doxorubicin-induced cellular toxicity. *Am J Physiol Regul Integr Comp Physiol.* 2019 Nov 1;317(5):R662-R672. PMID: 31461307.
  14. Hall SE, **Smuder AJ** and Hayward R. Effects of calorie restriction and voluntary exercise on doxorubicin-induced cardiotoxicity. *Integr Cancer Ther.* 2019 Apr 18:1-9. PMID: 30999765.
  15. **Smuder AJ**, Morton AB, Hall SE, Wiggs MP, Ahn B, Wawrzyniak NR, Sollanek KJ, Min K, Kwon OS, Nelson WB and Powers SK. Effects of exercise preconditioning and HSP72 on diaphragm muscle function during mechanical ventilation. *J Cachexia Sarcopenia Muscle.* 2019 Apr 10(4):767-781. PMID: 30972953.
  16. Hinkley JM, Morton AB, Ichinoseki-Sekine N, Huertas AM and **Smuder AJ**. Exercise training prevents doxorubicin-induced mitochondrial dysfunction of

- the liver. *Med Sci Sports Exerc.* 2019 Jun;51(6):1106-1115. PMID: 30629044.
17. VanderVeen BN, Fix DK, Montalvo RN, Counts BR, **Smuder AJ**, Murphy EA, Koh HJ and Carson JA. The regulation of skeletal muscle fatigability and mitochondrial function by chronically elevated interleukin-6. *Exp Physiol.* 2019 Mar;104(3):385-397. PMID: 30576589.
  18. Morton AB, **Smuder AJ**, Wiggs MP, Hall SE, Ahn B, Hinkley JM, Ichinoseki-Sekine N, Huertas AM, Ozedmir M, Yoshihara T, Wawrzyniak NP and Powers SK. Increased SOD2 in the diaphragm contributes to exercise-induced protection against ventilator-induced diaphragm dysfunction. *Redox Biol.* 2019 Jan;20:402-413. PMID:30414534.
  19. Morton AB, Huertas AM, Hinkley JM, Ichinoseki-Sekine N, Christou DD and **Smuder AJ**. Mitochondrial accumulation of doxorubicin in cardiac and diaphragm muscle following exercise preconditioning. *Mitochondrion.* 2019 Mar;45:52-62. PMID: 29474837.
  20. **Smuder AJ**, Sollanek KJ, Nelson WB, Min K, Talbert EE, Kavazis AN, Hudson MB, Sandri M, Szeto HH and Powers SK. Crosstalk between autophagy and oxidative stress regulates proteolysis in the diaphragm during mechanical ventilation. *Free Radic Biol Med.* 2018 Feb 1;115:179-190. PMID: 29197632.
  21. Kavazis AN, Morton AB, Hall SE and **Smuder AJ**. Effects of doxorubicin on cardiac muscle subsarcolemmal and intermyofibrillar mitochondria. *Mitochondrion.* 2017 May;34:9-19. PMID: 27832997.
  22. Sollanek KJ, Burniston JG, Kavazis AN, Morton AB, Wiggs MP, Ahn B, **Smuder AJ** and Powers SK. Global proteome changes in the rat diaphragm induced by endurance exercise training. *PLoS One.* 2017 Jan 30;12(1):e0171007. PMID: 28135290.
  23. Hyatt HW, **Smuder AJ**, Sollanek KJ, Morton AB, Roberts MD and Kavazis AN. Comparative changes in antioxidant enzymes and oxidative stress in cardiac, fast twitch and slow twitch skeletal muscles following endurance exercise training. *Int J Physiol Pathophysiol Pharmacol.* 2016 Dec 25;8(4):160-168. PMID: 28078055.
  24. Powers SK, Morton AB, Ahn B and **Smuder AJ**. Redox control of skeletal muscle atrophy. *Free Radic Biol Med.* 2016 Sep;98:208-17. PMID: 26912035.
  25. Talbert EE, **Smuder AJ**, Kwon OS, Sollanek KJ, Wiggs MP and Powers SK. Blockage of ryanodine receptor via azumolene does not prevent mechanical ventilation-induced atrophy. *PLoS One.* 2016 Feb 5;11(2):e0148161. PMID: 26849371
  26. Laitano O, Ahn BS, Patel N, Coblenz PD, **Smuder AJ**, Yoo JK, Christou DD, Adhietty PJ and Ferreira LF. Pharmacological targeting of mitochondrial

- reactive oxygen species counteracts diaphragm weakness in chronic heart failure. *J Appl Physiol*. 2016 Apr 1;120(7):733-42. PMID: 26846552.
27. **Smuder AJ**, Gonzalez-Rothi E, Kwon OS, Morton AB, Sollanek KJ, Powers SK and Fuller DD. Cervical spinal cord injury exacerbates ventilator-induced diaphragm dysfunction. *J Appl Physiol*. 2016 Jan 15;120(2):166-77. PMID: 26472866.
  28. Holland AM, Hyatt HW, **Smuder AJ**, Sollanek KJ, Morton AB, Roberts MD and Kavazis AN. Influence of endurance exercise training on antioxidant enzymes, tight junction proteins and inflammatory markers in the rat ileum. *BMC Res Notes*. 2015 Sep 30;8:514. PMID: 26423686.
  29. Hudson MB, **Smuder AJ**, Nelson WB, Wiggs WP, Shimkus KL, Fluckey JD, Szeto HH and Powers SK. Partial support ventilation and mitochondrial-targeted antioxidants protect against ventilator-induced diaphragm dysfunction. *PLoS One*. 2015 Sep 11;10(9):e0137693. PMID: 26361212.
  30. Kwon OS, **Smuder AJ**, Wiggs MP, Hall SE, Sollanek K, Morton A, Talbert E, Toklu HZ, Tumer N and Powers SK. AT1 receptor blocker losartan protects against mechanical ventilation-induced diaphragm dysfunction. *J Appl Physiol*. 2015 Nov 15;119(10):1033-41. PMID: 26359481.
  31. **Smuder AJ**, Sollanek KJ, Min K, Nelson WB and Powers SK. Inhibition of FOXO-specific transcription prevents mechanical ventilation-induced diaphragm dysfunction. *Crit Care Med*. 2015 May;43(5):e133-42. PMID: 25746508.
  32. Min K, Kwon O, **Smuder AJ**, Wiggs MP, Sollanek KJ, Christou DD, Yoo J, Hwang M, Szeto HH, Kavazis AN and Powers SK. Increased mitochondrial emission of reactive oxygen species and calpain activation are required for doxorubicin-induced cardiac and skeletal muscle myopathy. *J Physiol*. 2015 Apr 15;593(8):2017-36. PMID: 25643692.
  33. Sollanek KJ, **Smuder AJ**, Wiggs WP, Morton AB, Koch LG, Britton SL and Powers SK. Role of intrinsic aerobic capacity and ventilator-induced diaphragm dysfunction. *J Appl Physiol*. 2015 Apr 1;118(7):849-57. PMID: 25571991.
  34. Maes K, Stamiris A, Thomas D, Cielen N, **Smuder A**, Powers SK, Leite FS, Hermans G, Decramer M, Hussain SN, Gayan-Ramirez G. Effects of controlled mechanical ventilation on sepsis-induced diaphragm dysfunction in rats. *Crit Care Med*. 2014 Dec;24(12):e772-82. PMID: 25402297.
  35. Kavazis AN\*, **Smuder AJ\*** and Powers SK. Effects of short-term exercise training on acute doxorubicin-induced FOXO transcription in cardiac and skeletal muscle. *J Appl Physiol*. 2014 Aug 1;117(3):223-30. PMID: 24947024. \*Co-first authors
  36. **Smuder AJ**, Nelson WB, Hudson MB, Kavazis AN and Powers SK. Inhibition of the Ubiquitin-Proteasome Pathway does not protect against ventilator-

- induced accelerated proteolysis or atrophy in the diaphragm. *Anesthesiology*. 2014 Jul;121(1):115-26. PMID: 24681580.
37. Smith IJ, Godinez GL, Singh BK, McCaughey KM, Alcantara RR, Gururaja T, Ho MS, Nguyen HN, Frieria AM, White KA, McLaughlin JR, Hansen D, Romero JM, Baltgalvis KA, Claypool MD, Li W, Lang W, Yam GC, Gelman MS, Ding R, Yung SL, Creger DP, Chen Y, Singh R, **Smuder AJ**, Wiggs MP, Kwon OS, Sollanek KJ, Powers SK, Masuda ES, Taylor VC, Payan DG, Kinoshita T and Kinsella TM. Inhibition of Janis kinase signaling during controlled mechanical ventilation prevents ventilation-induced diaphragm dysfunction. *FASEB J*. 2014 Jul;28(7):2790-803. PMID: 24671708
  38. Toklu HZ, Kwon OS, Sakarya Y, Powers SK, Llinas K, Kirichenko N, Sollanek KJ, Wiggs MP, **Smuder AJ**, Talbert EE, Scarpace PJ and Tümer N. The effects of enalapril and losartan on mechanical ventilation-induced sympathoadrenal activation and oxidative stress in rats. *J Surg Res*. 2014 May 15;188(2):510-6. PMID: 24630519.
  39. Powers SK, **Smuder AJ**, Kavazis AN and Quindry JC. Mechanisms of exercise-induced cardioprotection. *Physiology*. 2014 Jan;29(1):27-38. PMID: 24382869.
  40. Powers SK, **Smuder AJ**, Fuller DD and Levine S. CrossTalk rebuttal: Mechanical ventilation-induced diaphragm atrophy in primarily due to inactivity. *J Physiol*. 2013 Nov 1;591(Pt 21):5263. PMID: 24187275.
  41. Powers SK, **Smuder AJ**, Fuller DD and Levine S. CrossTalk proposal: Mechanical ventilation-induced diaphragm atrophy in primarily due to inactivity. *J Physiol*. 2013 Nov 1;591(Pt 21):5255-7. PMID: 24187273.
  42. **Smuder AJ**, Falk DJ, Sollanek KJ, Nelson WB and Powers SK. Administration of recombinant adeno-associated virus vectors to the rat diaphragm muscle via direct intramuscular injection. *Hum Gene Ther Methods*. 2013 Dec;24(6):364-71. PMID: 24006956.
  43. Powers SK, Sollanek KJ, Wiggs MP, Demirel H and **Smuder AJ**. Exercise-induced improvements in myocardial antioxidant capacity: the antioxidant players and cardioprotection. *Free Radic Res*. 2013 Jan;48(1):43-51. PMID: 23915097.
  44. Powers SK, Wiggs MP, Sollanek KJ and Smuder AJ. Ventilator-induced diaphragm dysfunction: cause and effect. *Am J Physiol Regul Integr Comp Physiol*. 2013 Sep;305(5):R464-77. PMID: 23842681.
  45. Bruells CS, **Smuder AJ**, Reiss LK, Hudson MB, Nelson WB, Wiggs MP, Sollanek KJ, Uhlig S and Powers SK. Negative pressure ventilation and positive pressure ventilation promote comparable levels of ventilator-induced diaphragm dysfunction in rats. *Anesthesiology*. 2013 Sep;119(3):652-662. PMID: 23838714.
  46. Talbert EE, **Smuder AJ**, Min K, Kwon OS, Szeto HH and Powers SK. Immobilization-induced activation of key proteolytic systems in skeletal

- muscles is prevented by a mitochondrial-targeted antioxidant. *J Appl Physiol*. 2013 Aug;115(4):529-38. PMID: 23766499.
47. **Smuder AJ**, Kavazis AN, Min K, and Powers SK. Doxorubicin-induced markers of myocardial autophagic signaling in sedentary and exercise trained animals. *J Appl Physiol*. 2013 Jul;115(2):176-85. PMID: 23703114.
  48. Roberts BM, Ahn B, **Smuder AJ**, Al-Rajhi M, Gill LC, Beharry AW, Powers SK, Fuller DD, Ferreira LF and Judge AR. Diaphragm and ventilatory dysfunction during cancer cachexia. *FASEB J*. 2013 Jul;27(7):2600-10. PMID: 23515443.
  49. Talbert EE, **Smuder AJ**, Min K, Kwon O and Powers SK. Calpain and caspase-3 play required roles in immobilization-induced limb muscle atrophy. *J Appl Physiol*. 2013 May;114(10):1482-9. PMID: 23471945.
  50. Powers SK, **Smuder AJ** and Judge AR. Oxidative stress and disuse muscle atrophy: cause or consequence? *Curr Opin Clin Nutr Metab Care*. 2012 May;15(3):240-5. PMID: 22466926.
  51. Nelson WB, **Smuder AJ**, Hudson MB, Talbert EE and Powers SK. Cross-talk between the calpain and caspase-3 proteolytic systems in the diaphragm during prolonged mechanical ventilation. *Crit Care Med*. 2012 Jun;40(6):1857-63. PMID: 22487988.
  52. **Smuder AJ**, Min K, Kavazis AN, Hudson MB, Kwon O, Nelson WB and Powers SK. Endurance exercise attenuates ventilator-induced diaphragm dysfunction. *J Appl Physiol*. 2012 Feb;112(3):501-10. PMID: 22074717.
  53. **Smuder AJ**, Hudson MB, Nelson WB, Kavazis AN and Powers SK. NF- $\kappa$ B signaling contributes to mechanical ventilation-induced diaphragm weakness. *Crit Care Med*. 2012 Feb;112(3):501-10. PMID: 22080641.
  54. Lee Y, Min K, Talbert EE, Kavazis AN, **Smuder AJ**, Willis W, and Powers SK. Exercise protects myocardial mitochondria against ischemia-reperfusion injury. *Med Sci Sports Exerc*. 2012 Mar;44(3):397-405. PMID: 21857373.
  55. **Smuder AJ**, Kavazis AN, Min K, and Powers SK. Exercise attenuates doxorubicin-induced autophagy in skeletal muscle. *J Appl Physiol*. 2012 Feb;112(3):501-10. PMID: 21778418.
  56. Hudson MB, **Smuder AJ**, Nelson WB, Levine S and Powers SK. Pressure support mechanical ventilation promotes ventilator-induced diaphragmatic weakness. *Crit Care Med*. 2011 Apr;40(3):927-34. PMID: 22425820.
  57. Min K, **Smuder AJ**, Kwon O, Kavazis AN, Szeto HH, and Powers SK. Mitochondrial-targeted antioxidants protect the skeletal muscle against immobilization-induced muscle atrophy. *J Appl Physiol*. 2011 Nov;111(5):1459-66. PMID: 21817113.
  58. Powers SK, Hudson MB, Nelson WB, Talbert EE, Min K, Szeto H, Kavazis AN and **Smuder AJ**. Mitochondrial-targeted antioxidants protect the



- diaphragm against mechanical ventilation-induced atrophy and contractile dysfunction. *Crit Care Med*. 2011 Jul;39(7):1749-59. PMID: 21460706.
59. **Smuder AJ**, Kavazis AN, Min K, and Powers SK. Exercise attenuates doxorubicin-induced skeletal muscle damage. *J Appl Physiol*. 2011 Apr;110(4):935-42. PMID: 21310889.
  60. Powers SK, **Smuder AJ**, and Criswell DS. Oxidative stress and disuse muscle atrophy. *Antioxid Redox Signaling*. 2011 Nov 1;15(9):2519-28. PMID: 21457104.
  61. Agten A, Maes K, **Smuder A**, Powers SK, Decramer M and Gayan-Ramirez G. N-acetylcysteine protects the rat diaphragm from the deleterious effects of mechanical ventilation. *Crit Care Med*. 2011 Apr; 39(4):777-82. PMID: 21242791.
  62. Maes K, Agten A, **Smuder A**, Powers SK, Decramer M and Gayan-Ramirez G. Corticosteroids effects on ventilator-induced diaphragm dysfunction are dose-dependent. *Respir Res*. 2010 Dec 14;11:178. PMID: 21156051.
  63. Falk DJ, Whidden MA, McClung JM, **Smuder AJ**, Hudson MB, Powers SK. Mechanical ventilation-induced oxidative stress in the diaphragm: Role of heme oxygenase-1. *Chest*. 2010 Apr; 139(4):11:178. PMID: 21106654.
  64. Kavazis AN, **Smuder AJ**, Min K, Tumer N, and Powers SK. Short-term exercise training protects against doxorubicin-induced cardiac mitochondrial damage independent of HSP72. *Am J Physiol Heart Circ Physiol*. 2010 Nov; 299(5):H1515-24. PMID: 20833957.
  65. **Smuder AJ**, Kavazis AN, Hudson MB, Nelson WB and Powers SK. Oxidative stress enhances myofibrillar protein degradation via calpain and caspase-3. *Free Radic Biol Med*. 2010 Oct 15;49(7):1152-60. PMID: 20600829.
  66. Whidden MA, **Smuder AJ**, Wu M, Hudson MB, Nelson WB and Powers SK. Trolox attenuates mechanical ventilation-induced calpain-1 and caspase-3 activation in the diaphragm. *J Appl Physiol*. 2010 May; 108(5):1376-82. PMID: 20203072.
  67. Powers SK, **Smuder AJ**, Hudson MB. Experimental guidelines for studies designed to investigate the impact of antioxidant supplementation on exercise performance. *Int J Sport Nutr Exerc Metab*. 2010 Feb; 20(1):2-14. PMID: 20190346.
  68. Kavazis AN, Talbert EE, **Smuder AJ**, Hudson MB, Nelson WB, and Powers SK. Mechanical ventilation induces diaphragmatic mitochondrial dysfunction and increased oxidant production. *Free Radic Biol Med*. 2009 Mar 15;46(6):842-50. PMID: 19185055.
  69. Whidden MA, McClung JM, Falk DJ, Hudson MB, **Smuder AJ**, Nelson WB and Powers SK. Xanthine Oxidase Contributes to Diaphragmatic Oxidative Stress and Contractile Dysfunction During Mechanical Ventilation. *J Appl Physiol*. 2009 Feb;106(2):385-94. PMID: 18974366.

70. Kavazis AN, DeRuisseau, KC, McClung JM, Whidden MA, Falk DJ, **Smuder AJ**, Sugiura T, and Powers SK. Diaphragmatic Proteasome Function in the aging Fisher 344 rat. *Exp Physiol*. 2007 Sep; 92(5):895-901. PMID: 17631517.

### **BOOK CHAPTERS**

1. Kavazis AN and Smuder AJ. Diaphragm. *Encyclopedia of Exercise Medicine in Health and Disease*. Mooren FC (Ed). Springer. ISBN 9783540360650. pp 247-250. 2012.
2. Fuller DD, Rana S, Smuder AJ and Dale E. The phrenic neuromuscular system. In: *Handbook of Clinical Neurology. Respiratory Neurobiology Part I*. Editors: Guyenet PG and Chen R. Elsevier [In press, Accepted February 2022].

### **ORAL PRESENTATIONS (as presenting author)**

1. NF- $\kappa$ B Contributes to Mechanical Ventilation-induced Diaphragm Weakness. **Ashley J. Smuder**, Neuronoons Seminar Series, University of Florida. June 10, 2010.
2. Linking oxidants and NF- $\kappa$ B as mediators of muscle atrophy. **Ashley J. Smuder**, SEACSM, February 5, 2011.
3. Effects of Endurance Exercise Training on Mechanical Ventilation-induced Diaphragm Weakness. **Ashley J. Smuder**, Neuronoons Seminar Series, University of Florida. June 30, 2011.
4. Doxorubicin-induced skeletal muscle toxicity. **Ashley J. Smuder**, SEACSM, February 4, 2012.
5. Contribution of autophagy to mechanical ventilation-induced diaphragm dysfunction. **Ashley J. Smuder**, Neuronoons Seminar Series, University of Florida. June 14, 2012.
6. Regulation of Mechanical Ventilation-induced Diaphragm Dysfunction by FoxO. **Ashley J. Smuder**, Muscle Biology Seminar Series, University of Florida. August 21, 2012.
7. Mechanisms of Mechanical Ventilation-induced Diaphragm Dysfunction. **Ashley J. Smuder**, CES Seminar Series, University of Florida. September 20, 2012.
8. Mechanisms of Doxorubicin-induced Skeletal Muscle Dysfunction. **Ashley J. Smuder**, Neuronoons Seminar Series, University of Florida. June 13, 2013.
9. HSP70 overexpression protects the diaphragm against ventilator-induced diaphragm dysfunction. **Ashley J. Smuder**, EMBO International Conference on Muscle Wasting. September 19, 2013.

10. HSP70 overexpression during mechanical ventilation protects against mitochondrial dysfunction and apoptotic signalling in the diaphragm. **Ashley J. Smuder**, FASEB. April 28, 2014.
11. PINES special event: 10 questions, 10 experts: Does curcumin offer any benefits to chronic inflammation or bone health in athletes at high risk? What's the best way to take it? **Ashley J. Smuder**, ACSM. May 27, 2014.
12. Angiotensin II's role in skeletal muscle atrophy. **Ashley J. Smuder**, SEACSM. February 11, 2015.
13. Effects of mechanical ventilation and autophagy on diaphragm oxidative stress and proteolysis. **Ashley J. Smuder**, FASEB. April 1, 2015.
14. Increased autophagy is required for mechanical ventilation-induced diaphragm mitochondrial dysfunction. **Ashley J. Smuder**, Physiological Bioenergetics: From bench to bedside. September 11, 2015.
15. Ventilator-induced diaphragm dysfunction: Therapeutic role of exercise preconditioning. **Ashley J. Smuder**, Myology Institute Seminar Series, University of Florida. February 2, 2016.
16. Therapeutic effects of exercise preconditioning on muscle atrophy: the role of HSP72. **Ashley J. Smuder**, MARC-ACSM. November 4, 2016.
17. Linking oxidants and autophagy as mediators of chemotherapy-induced muscle dysfunction. **Ashley J. Smuder**, CCCR annual retreat. January 11, 2018.
18. Chemotherapy-induced muscle wasting: Therapeutic effects of exercise **Ashley J. Smuder**, FASEB. April 23, 2018.
19. Autophagy promotes cancer chemotherapy-induced oxidative stress and skeletal muscle dysfunction. **Ashley J. Smuder**, FASEB. April 25, 2018.
20. Chemotherapy-induced muscle wasting: Causes and preventative strategies. **Ashley J. Smuder**, Myology Institute Seminar Series, University of Florida. October 3, 2019.
21. Exercise preconditioning diminishes solute carrier protein expression and doxorubicin accumulation in the diaphragm. **Ashley J. Smuder**, 12<sup>th</sup> International Conference on Cachexia, Sarcopenia and Muscle Wasting. December 8, 2019.
22. Therapeutic effects of exercise to diminish chemotherapy-induced muscle toxicity. **Ashley J. Smuder**, NW ACSM. February 28, 2020.
23. Mechanisms of doxorubicin toxicity in cardiac and skeletal muscle. **Ashley J. Smuder**, 13<sup>th</sup> International Conference on Cachexia, Sarcopenia and Muscle Wasting. December 11, 2020.
24. Therapeutic effects of exercise preconditioning to prevent chemotherapy myotoxicity. **Ashley J. Smuder**, Department of Nutrition, Food and Exercise Science Seminar Series, Florida State University, March 22, 2021.

25. Exercise and chemotherapy-related muscle weakness. **Ashley J. Smuder**, Translational Research on Myology and Mobility Medicine Conference, May 27, 2021.
26. Current investigation into doxorubicin-induced cardiorespiratory dysfunction. **Ashley J. Smuder**, Department of Kinesiology, Kansas State University, July 8, 2021.
27. Mitochondrial dysfunction and chemotherapy-related myotoxicity. **Ashley J. Smuder**, 6<sup>th</sup> Cancer Cachexia Conference, August 29, 2021.
28. Chemotherapy-related myotoxicity and the therapeutic effects of exercise. **Ashley J. Smuder**, Department of Exercise Science Seminar Series, Brigham Young University, December 2, 2021.
29. Diaphragm ABCB6 overexpression preserves respiratory function following doxorubicin chemotherapy treatment. **Ashley J. Smuder**, Translational Research on Myology and Mobility Medicine Conference, March 30, 2022.
30. Impact of exercise and chemotherapy on the respiratory neuromuscular system. **Ashley J. Smuder**, 15<sup>th</sup> International Conference on Cachexia, Sarcopenia and Muscle Wasting, June 25, 2022.

#### **POSTER PRESENTATIONS AND PUBLISHED ABSTRACTS**

1. Michael D. Sunshine, Victoria E. Bindi, Branden L. Nguyen, Vivian Doerr, Francesco P. Boeno, Vijayendran Chandran, **Ashley J. Smuder** and David D. Fuller. Restoration of tidal volume after spinal cord injury by hyperbaric oxygen therapy requires both pressure and 100% oxygen. (FASEB 2022).
2. Branden L. Nguyen, Vivian Doerr, Ryan N. Montalvo and **Ashley J. Smuder**. Exercise Preconditioning Prevents Doxorubicin-induced Respiratory Muscle Dysfunction Independent of Adaptations to Phrenic Nerve-stimulated Contraction. (FASEB 2022).
3. Vivian Doerr, Ryan N. Montalvo, Branden L. Nguyen, Francesco P. Boeno, Mustafa Ozdemir, Matthew P. Bomkamp and **Ashley J. Smuder**. Exercise Preconditioning Alters Markers of Cellular Senescence and Prevents DOX-Induced Cardiorespiratory Dysfunction (FASEB 2022).
4. Ryan N. Montalvo, Francesco P. Boeno, Mustafa Ozdemir, Intiaz M. Dowllah, Vivian Doerr, Branden L. Nguyen, Matthew Bomkamp and **Ashley J. Smuder**. Response of Subsarcolemmal and Intermysofibrillar Mitochondria to Exercise and Doxorubicin-Induced Cardiotoxicity. (FASEB 2022).
5. Francesco P. Boeno, Michael D. Sunshine, Victoria E. Bindi, David D. Fuller and **Ashley J. Smuder**. Hyperbaric Oxygen Therapy Following Cervical Spinal Cord Injury Increases BDNF/TrkB Signaling in Diaphragm Muscle. (FASEB 2022).

6. Mustafa Ozdemir, Matthew P. Bomkamp, Vivian Doerr, Branden L. Nguyen and **Ashley J. Smuder**. Diaphragm ABCB6 overexpression preserves respiratory function following doxorubicin chemotherapy treatment. (PMD3 conference 2022)
7. **Ashley J. Smuder**, Vivian Doerr and Branden L. Nguyen. ABCB10 overexpression prevents acute doxorubicin-induced cardiac dysfunction. (AHA Scientific Sessions 2021).
8. Ryan N. Montalvo, Vivian Doerr, Branden L. Nguyen and **Ashley J. Smuder**. Exercise preconditioning reduces the doxorubicin-induced systemic inflammatory response and preserves cardiac function. (Cancer Cachexia Society 2021).
9. Branden L. Nguyen, Vivian Doerr, Ryan N. Montalvo and **Ashley J. Smuder**. Evaluation of a novel preclinical model of doxorubicin myotoxicity. (Cancer Cachexia Society 2021).
10. Vivian Doerr, Branden L. Nguyen, Ryan N. Montalvo, Mustafa Ozdemir, David D. Fuller and **Ashley J. Smuder**. Effects of hyperbaric oxygen preconditioning on diaphragm function following acute doxorubicin treatment. (Cancer Cachexia Society 2021).
11. Branden L. Nguyen, Ryan N. Montalvo, Rachel C. Kelley and **Ashley J. Smuder**. Endurance exercise preconditioning modulates soleus muscle drug transporter expression and doxorubicin accumulation. (FASEB 2021).
12. Ryan N. Montalvo, Vivian Doerr, Oh Sung Kwon, Erin E. Talbert, Jeung-Ki Yoo, Moon Huan Hwang, Branden L. Nguyen, Demetra D. Christou, Andreas N. Kavazis and **Ashley J. Smuder**. Protection against doxorubicin-induced cardiac dysfunction is not maintained following prolonged autophagy inhibition. (International Conference on Cachexia, Sarcopenia and Muscle Wasting 2020).
13. Vivian Doerr and **Ashley J. Smuder**. Doxorubicin and exercise preconditioning alter iron regulatory protein expression in the diaphragm. (UF Health Cancer Center Research Symposium 2020).
14. Branden L. Nguyen, Ryan N. Montalvo and **Ashley J. Smuder**. Endurance exercise preconditioning modulates DOX transport gene expression in the heart. (UF Health Cancer Center Research Symposium 2020).
15. **Ashley J. Smuder**, Andres Mor Huertas and Aaron B. Morton. Exercise preconditioning diminishes solute carrier protein expression and cardiac doxorubicin accumulation. (AHA BCVS 2020).
16. **Ashley J. Smuder**, Andres Mor Huertas and Aaron B. Morton. Exercise preconditioning prevents chemotherapy-induced alterations to transport proteins required for mitochondrial iron uptake and metabolism in the diaphragm. (FASEB 2020).
17. **Ashley J. Smuder**, Andres Mor Huertas and Aaron B. Morton. Exercise preconditioning diminishes solute carrier protein expression and doxorubicin

- accumulation in the diaphragm. (International Conference on Cachexia, Sarcopenia and Muscle Wasting 2019).
18. Stephanie Varga, Ryan N. Montalvo and **Ashley J. Smuder**. Autophagy inhibition in doxorubicin-treated animals attenuates mitochondrial dysfunction and oxidative stress in the heart. (Discover USC 2019).
  19. Michael Byrnes, Vivian Doerr, **Ashley J. Smuder**. Effects of doxorubicin-induced autophagy on neuromuscular junction protein expression. (Discover USC 2019).
  20. John Lynch, Ryan N. Montalvo and **Ashley J. Smuder**. The effect of endurance exercise training on cardiac expression of solute carrier proteins. (Discover USC 2019).
  21. Ryan N. Montalvo, Vivian Doerr, Kisuk Min, Hazel H. Szeto and **Ashley J. Smuder**. Doxorubicin-induced oxidative stress upregulates autophagy and ER stress signaling in the diaphragm. (SMBHD 2019).
  22. Vivian Doerr, Ryan N. Montalvo, Oh Sung Kwon, Erin E. Talbert, Brian A. Hain, Fraser E. Houston and **Ashley J. Smuder**. Contribution of autophagy to doxorubicin-induced skeletal muscle dysfunction. (SMBHD 2019).
  23. Noriko Ichinoseki-Sekine, Aaron B. Morton, **Ashley J. Smuder**, J. Matthew Hinkley and Scott K. Powers. Hydrogen sulfide prevents mechanical ventilation-induced diaphragm atrophy and dysfunction. (Integrative Physiology of Exercise 2018).
  24. **Ashley J. Smuder**, Aaron B. Morton, Noriko Ichinoseki-Sekine, Andres Mor Huertas and J. Matthew Hinkley. Endurance exercise training prevents doxorubicin-induced mitochondrial dysfunction of the liver. (Integrative Physiology of Exercise 2018).
  25. **Ashley J. Smuder**, Oh Sung Kwon, Erin E. Talbert, Demetra D. Christou, Jeung-Ki Yoo, Moon-Hyon Hwang and Andreas N. Kavazis. Accelerated autophagy is required for doxorubicin-induced oxidative damage and cardiomyopathy. (AHA BCVS 2018).
  26. **Ashley J. Smuder**, Oh Sung Kwon, Brian A. Hain, Fraser E. Houston and Erin E. Talbert. Autophagy promotes cancer chemotherapy-induced oxidative stress and skeletal muscle dysfunction. (FASEB 2018).
  27. Aaron B. Morton, **Ashley J. Smuder**, Hayden W. Hyatt, J. Matthew Hinkley, Noriko Ichinoseki-Sekine, Andres Mor Huertas and Scott K. Powers. Overexpression of SOD2 in the diaphragm provides partial protection against ventilator-induced diaphragm atrophy and contractile dysfunction. (FASEB 2018).
  28. Michael P. Wiggs, Brandon M. Roberts, Oh Sung Kwon, Jeung-Ki Yoo, Demetra D. Christou, Andrew R. Judge, David D. Fuller, Hazel H. Szeto and **Ashley J. Smuder**. Mitochondrial dysfunction promotes cancer-induced cardiac and respiratory muscle weakness. (International Conference on Cachexia, Sarcopenia and Muscle Wasting 2017).

29. Aaron B. Morton, **Ashley J. Smuder**, Stephanie E. Hall, Michael P. Wiggs and Scott K. Powers. Oral administration of BGP-15 significantly increases HSP72 expression and attenuates ventilator-induced diaphragm dysfunction. (FASEB 2017).
30. J. Matthew Hinkley, Aaron B. Morton, **Ashley J. Smuder** and Scott K. Powers. Differential expression of the angiotensin II type 1 receptor amongst various skeletal muscle types. (FASEB 2017).
31. **Ashley J. Smuder**, Sanford Levine and Scott K. Powers. Altered neuromuscular junction protein expression in the diaphragm of mechanically ventilated patients. (FASEB 2017).
32. Sara M. Turner, Cassandra M. Schuster, Aaron B. Morton, J. Matthew Hinkley, David D. Fuller and **Ashley J. Smuder**. Hyperbaric oxygen treatment following mid-cervical spinal contusion injury – diaphragm outcomes. (FASEB 2017).
33. Kisuk Min, Andreas N. Kavazis and **Ashley J. Smuder**. Attenuation of Doxorubicin-induced Changes in Neuromuscular Junction Protein Expression by Exercise. (Cancer Cachexia 2016).
34. **Ashley J. Smuder**, Aaron B. Morton, Stephanie E. Hall, Bumsoo Ahn, Michael P. Wiggs, Nicholas R. Wawrzyniak, and Scott K. Powers. HSP72 is required for exercise-induced protection against ventilator-induced diaphragm dysfunction (FASEB 2016).
35. Aaron B. Morton, **Ashley J. Smuder**, Michael P. Wiggs, Stephanie E. Hall, Bumsoo Ahn, Nicholas R. Wawrzyniak, and Scott K. Powers. MnSOD activity contributes to exercise-induced protection against ventilator-induced diaphragm dysfunction. (FASEB 2016).
36. **Ashley J. Smuder**, Andreas N. Kavazis and Scott K. Powers. Effect of doxorubicin on cardiac muscle subsarcolemmal and intermyofibrillar mitochondria. (International Conference on Cachexia, Sarcopenia and Muscle Wasting 2015).
37. **Ashley J. Smuder**, Kurt J. Sollanek, W. Bradley Nelson, Kisuk Min, Erin E. Talbert and Scott K. Powers. Increased autophagy is required for mechanical ventilation-induced diaphragm mitochondrial dysfunction. (Physiological Bioenergetics 2015).
38. Kurt J. Sollanek, Aaron B. Morton, **Ashley J. Smuder**, Jatin G. Burniston, Scott K. Powers. Adaptation of the rat diaphragm proteome in response to endurance exercise training. (ACSM 2015).
39. **Ashley J. Smuder**, Kurt J. Sollanek, W. Bradley Nelson, Kisuk Min, Erin E. Talbert and Scott K. Powers. Effects of mechanical ventilation and autophagy on diaphragm oxidative stress and proteolysis. (FASEB 2015).
40. **Ashley J. Smuder**, Kisuk Min, Oh-Sung Kwon, Michael P. Wiggs, Kurt J. Sollanek, Demetra D. Christou, Jeung-Ki Yoo, Moon-Hyon Hwang, Hazel H. Szeto, Andreas N. Kavazis, and Scott K. Powers. Increased

- mitochondrial reactive oxygen species emission is required for doxorubicin-induced cardiac and skeletal muscle myopathy. (Cancer Cachexia 2014).
41. **Ashley J. Smuder**, Elisa J. Gonzalez-Rothi, Oh Sung Kwon, Aaron B. Morton, Scott K. Powers and David D. Fuller. Antioxidant Administration Protects Against Cervical Spinal Cord Injury-induced Diaphragm Mitochondrial Dysfunction and Atrophy. (Integrative Physiology of Exercise 2014).
  42. A. Maleah Holland, Hayden W. Hyatt, **Ashley J. Smuder**, Kurt J. Sollanek, Aaron B. Morton, and Andreas N. Kavazis. Gastrointestinal system antioxidant status and health after endurance exercise training. (Integrative Physiology of Exercise 2014).
  43. Hayden W. Hyatt, **Ashley J. Smuder**, Kurt J. Sollanek, Aaron B. Morton, and Andreas N. Kavazis. Cardiac and Skeletal Muscle Changes in Antioxidant Enzymes and Oxidative Stress following Endurance Exercise Training. (Integrative Physiology of Exercise 2014).
  44. Kurt J. Sollanek, **Ashley J. Smuder**, Michael P. Wiggs, Oh Sung Kwon and Scott K. Powers. Loss of training-induced protection against ventilator-induced diaphragm dysfunction after cessation of exercise. (ACSM 2014).
  45. Michael P. Wiggs, **Ashley J. Smuder**, Kurt J. Sollanek, Kevin L. Shimkus, James D. Fluckey and Scott K Powers. Inhibition of FOXO-dependent translation prevents mechanical ventilation-induced reduction in diaphragm protein synthesis. (ACSM 2014).
  46. Andreas N. Kavazis, Ashley J. Smuder and Scott K. Powers. Endurance exercise training protects cardiac muscle against doxorubicin-induced damage via inhibition of the FOXO pathway. (ACSM 2014).
  47. **Ashley J. Smuder**, Kurt J. Sollanek, Kisuk Min, Oh Sung Kwon, Bradley W. Nelson and Scott K. Powers. HSP70 overexpression during mechanical ventilation protects against mitochondrial dysfunction and apoptotic signalling in the diaphragm. (FASEB 2014).
  48. Andreas N. Kavazis, **Ashley J. Smuder** and Scott K. Powers. Endurance exercise protects cardiac muscle against doxorubicin-induced damage via mitochondrial adaptations. (FASEB 2014).
  49. Oh Sung Kwon, Ashley J. Smuder, Kurt J. Sollanek, Michael P. Wiggs, Erin E. Talbert and Scott K. Powers. AT1 receptor blocker attenuates mechanical ventilation-induced atrophy and oxidative stress in the diaphragm. (FASEB 2014).
  50. **Ashley J. Smuder**, Kurt J. Sollanek, W. Bradley Nelson, Kisuk Min and Scott K. Powers. FoxO transcription contributes to mechanical ventilation-induced diaphragm atrophy and contractile dysfunction. (FASEB 2013).
  51. Luther Gill, Heather Hamilton-Ross, Elisa J. Gonzalez-Rothi, **Ashley J. Smuder**, Andrew R. Judge, David D. Fuller. The diaphragm rapidly increases



- expression of muscle atrophy genes following acute cervical spinal cord injury. (FASEB 2013).
52. Bumsoo S. Ahn, Kurt J. Sollanek, **Ashley J. Smuder**, Scott K. Powers and Leonardo F. Ferreira. Mechanical ventilation impairs sarcomeric protein function in rat diaphragm single fibers. (FASEB 2013).
  53. Kurt J. Sollanek, **Ashley J. Smuder**, Matthew B. Hudson, Christopher T. Carrigan, Maria L. Urso and Scott K. Powers. Matrix metalloproteinase-2 is not active in the diaphragm during mechanical ventilation. (FASEB 2013).
  54. Erin E. Talbert, **Ashley J. Smuder**, OhSung Kwon, Kurt J. Sollanek, Michael P. Wiggs and Scott K. Powers. Azumolene administration during prolonged mechanical ventilation does not prevent mitochondrial reactive oxygen species emission or diaphragm atrophy. (FASEB 2013).
  55. Micheal P. Wiggs, Matthew B. Hudson, **Ashley J. Smuder**, Bradley W. Nelson Kevin L. Shimkus, James D. Fluckey and Scott K. Powers. Impact of prolonged mechanical ventilation on diaphragmatic protein synthesis. (FASEB 2013).
  56. Karen Maes, Debby Thomas, Nele Cielen, **Ashley J. Smuder**, Scott K. Powers, Alexandre Demoule, Greet Hermans, Marc Decramer and Ghislaine Gayan-Ramirez. Controlled mechanical ventilation in septic animals: effects on diaphragm function. (ATS 2013).
  57. Andreas N. Kavazis, **Ashley J. Smuder** and Scott K. Powers. Endurance exercise training protects against doxorubicin-induced damage via PGC-1 $\alpha$  mediated adaptations. (FASEB 2013).
  58. Kurt J. Sollanek, Andreas N. Kavazis, **Ashley J. Smuder**, Michael P. Wiggs, Aaron B. Morton and Scott K. Powers. Exercise training induces a diaphragmatic phenotype that resists apoptotic stimuli. (ASMBHD 2012).
  59. **Ashley J. Smuder**, Kurt J. Sollanek, Kisuk Min, Michael P. Wiggs, Hazel H. Szeto and Scott K. Powers. Mitochondrial-targeted antioxidants protect against doxorubicin-induced skeletal muscle toxicity. (Cancer Cachexia 2012).
  60. Erin E. Talbert, **Ashley J. Smuder**, Kisuk Min, Oh-Sung Kwon, Hazel H. Szeto and Scott K. Powers. (Cancer Cachexia 2012).
  61. Brandon Roberts, **Ashley J. Smuder**, Luther Gill, Scott K. Powers, David D. Fuller and Andrew R. Judge. Diaphragm muscle fiber atrophy and contractile dysfunction and ventilatory dysfunction in C-26 tumor bearing mice. (Cancer Cachexia 2012).
  62. **Ashley J. Smuder**, Brandon Roberts, Kisuk Min, Andrew R. Judge and Scott K. Powers. Cancer cachexia induces increased oxidant damage and mitochondrial dysfunction in the diaphragm. (NDBDSMC 2012).

63. **Ashley J. Smuder**, Darin J. Falk, W. Bradley Nelson and Scott K. Powers. Administration of recombinant adeno-associated virus vector to the diaphragm through direct intramuscular injection. (FASEB 2012).
64. **Ashley J. Smuder**, Brandon Roberts, Kisuk Min, Andrew R. Judge and Scott K. Powers. Mitochondrial damage is associated with cancer cachexia-induced diaphragm dysfunction. (UF NPS 2012).
65. **Ashley J. Smuder**, Darin J. Falk, W. Bradley Nelson, Kurt J. Sollanek and Scott K. Powers. Direct intramuscular injection of adeno-associated virus vector as a method to study diaphragm dysfunction. (ASMBHD 2012).
66. Erin E. Talbert, **Ashley J. Smuder**, Kisuk Min, Oh-Sung Kwon and Scott K. Powers. Inhibition of calpain or caspase-3 protects against immobilization-induced muscle atrophy. (FASEB 2012).
67. W. Bradley Nelson, **Ashley J. Smuder**, Kurt J. Sollanek, Kisuk Min, Hazel H. Szeto and Scott K. Powers. Increased mitochondrial ROS production is required for ventilator-induced myonuclear apoptosis in the diaphragm. (FASEB 2012).
68. Andreas N. Kavazis, **Ashley J. Smuder**, Kisuk Min and Scott K. Powers. Markers of autophagy are elevated in cardiac tissue following doxorubicin administration. (FASEB 2012).
69. Andreas N. Kavazis, **Ashley J. Smuder**, Kisuk Min and Scott K. Powers. Endurance exercise prevents upregulation of autophagy markers in the heart following doxorubicin administration. (ACSM 2012).
70. Erin E. Talbert, **Ashley J. Smuder**, Kisuk Min, Oh-Sung Kwon, Hazel H. Szeto and Scott K. Powers. A mitochondrial-targeted antioxidant protects against casting-induced soleus atrophy in the rat. (SEACSM 2012).
71. **Ashley J. Smuder**, Matthew B. Hudson, W. Bradley Nelson, Andreas N. Kavazis, Hazel H. Szeto and Scott K. Powers. Mitochondrial-targeted antioxidants protect the diaphragm against mechanical ventilation-induced autophagic signaling. (EMBO International Conference on Muscle Wasting 2011).
72. **Ashley J. Smuder**, Kisuk Min, Andreas N. Kavazis, Matthew B. Hudson, Oh-sung Kwon, W. Bradley Nelson and Scott K. Powers. Endurance exercise attenuates mechanical ventilation-induced diaphragm weakness. (FASEB 2011).
73. W. Bradley Nelson, **Ashley J. Smuder**, Matthew B. Hudson, Erin E. Talbert and Scott K. Powers. Calpain activates caspase-3 via caspase-9 in mechanical ventilation-induced weakness. (FASEB 2011).
74. Andreas N. Kavazis, **Ashley J. Smuder**, Kisuk Min and Scott K. Powers. Doxorubicin administration increases markers of autophagy in skeletal muscle. (ACSM 2011).

75. **Ashley J. Smuder**, Kisuk Min, Andreas N. Kavazis, Matthew B. Hudson, Oh-sung Kwon, W. Bradley Nelson and Scott K. Powers. Effects of endurance exercise of mechanical ventilation-induced diaphragm dysfunction. (UF NPS 2011).
76. **Ashley J. Smuder**, Matthew B. Hudson, W. Bradley Nelson, Andreas N. Kavazis, and Scott K. Powers. NF- $\kappa$ B contributes to mechanical ventilation-induced diaphragm weakness. (Integrative Physiology of Exercise 2010).
77. Matthew B. Hudson, **Ashley J. Smuder**, W. Bradley Nelson, Sanford Levine, and Scott K. Powers. Pressure support ventilation promotes diaphragmatic atrophy and weakness. (Integrative Physiology of Exercise 2010).
78. W. Bradley Nelson, **Ashley J. Smuder**, Matthew B. Hudson, Erin E. Talbert, and Scott K. Powers. Calpain and Caspase-3 participate in regulatory crosstalk during disuse muscle atrophy. (Integrative Physiology of Exercise 2010).
79. Kisuk Min, **Ashley J. Smuder**, Oh-sung Kwon, Andreas N. Kavazis, Hazel H. Szeto, and Scott K. Powers. Mitochondrial ROS production is required for disuse muscle atrophy. (Integrative Physiology of Exercise 2010)
80. Erin E. Talbert, **Ashley J. Smuder**, Matthew B. Hudson, W. Bradley Nelson, Kisuk Min, Hazel H. Szeto, Andreas N. Kavazis, and Scott K. Powers. A mitochondrial-targeted antioxidant protects against mechanical ventilation-induced diaphragm weakness. (Integrative Physiology of Exercise 2010).
81. **Ashley J. Smuder**, Andreas N. Kavazis, Matthew B. Hudson, W. Bradley Nelson, and Scott K. Powers. Curcumin attenuates mechanical ventilation-induced diaphragmatic atrophy and contractile dysfunction. (UF NPS 2010).
82. Matthew B. Hudson, **Ashley J. Smuder**, W. Bradley Nelson, Sanford Levine, and Scott K. Powers. Assist-control mechanical ventilation promotes ventilator-induced diaphragmatic weakness. (UF NPS 2010).
83. **Ashley J. Smuder**, Andreas N. Kavazis, Matthew B. Hudson, W. Bradley Nelson, and Scott K. Powers. Oxidative stress enhances myofibrillar protein degradation via calpain and caspase-3. (FASEB 2010).
84. Kisuk Min, **Ashley J. Smuder**, Oh-Sung Kwon, Andreas N. Kavazis, Hazel H. Szeto, and Scott K. Powers. Mitochondrial-targeted antioxidants protect against immobilization-induced skeletal muscle atrophy. (FASEB 2010).
85. **Ashley J. Smuder**, Andreas N. Kavazis, Matthew B. Hudson, W. Bradley Nelson, and Scott K. Powers. Curcumin attenuates mechanical ventilation-induced diaphragmatic oxidative stress and protease activation. (ATS 2010).
86. Andreas N. Kavazis, **Ashley J. Smuder**, Kisuk Min, Nihal Tumer and Scott K. Powers. Endurance exercise protects cardiac tissue from doxorubicin-induced proteolysis and apoptosis. (FASEB 2010).

87. Andreas N. Kavazis, **Ashley J. Smuder**, Kisuk Min, Nihal Tumer and Scott K. Powers. Exercise training attenuates cardiac mitochondria dysfunction and oxidant release following doxorubicin treatment. (ACSM 2010).
88. Matthew B. Hudson, **Ashley J. Smuder**, W. Bradley Nelson, Sanford Levine, and Scott K. Powers. Both control and assist-control mechanical ventilation promote ventilator-induced diaphragmatic weakness. (ATS 2010).
89. Matthew B. Hudson, Melissa A. Whidden, **Ashley J. Smuder**, Min Wu, W. Bradley Nelson, and Scott K. Powers. Oxidative stress is required for mechanical ventilation-induced protease activation in the diaphragm. (FASEB 2010).
90. W. Bradley Nelson, Matthew B. Hudson, **Ashley J. Smuder**, and Scott K. Powers. Skeletal muscle proteases contribute to mechanical ventilation-induced diaphragmatic contractile dysfunction. (ATS 2010).
91. Karen Maes, Anouk Agten, **Ashley J. Smuder**, Scott K. Powers, Marc Decramer and Ghislaine Gayan-Ramirez. Protective effect of methylprednisolone on ventilator-induced diaphragm dysfunction is dose dependent. (FASEB 2010).
92. Anouk Agten, Karen Maes, **Ashley J. Smuder**, Scott K. Powers, Marc Decramer and Ghislaine Gayan-Ramirez. N-acetylcysteine attenuates ventilator-induced diaphragm dysfunction in rats. (FASEB 2010).
93. Karen Maes, Anouk Agten, **Ashley J. Smuder**, Scott K Powers, Marc Decramer and Ghislaine Gayan-Ramirez. Protective effect of methylprednisolone on ventilator-induced diaphragm dysfunction is dose dependent. (ISICEM 2010).
94. Anouk Agten, Karen Maes, **Ashley Smuder**, Scott K Powers, Marc Decramer and Ghislaine Gayan-Ramirez. N-acetylcysteine attenuates ventilator-induced diaphragm dysfunction in rats. (ISICEM 2010).
95. **Ashley J. Smuder**, Kisuk Min, Andreas N. Kavazis. Exercise attenuates doxorubicin-induced skeletal muscle toxicity. (FASEB 2009).
96. Andreas N. Kavazis, Erin E. Talbert, **Ashley J. Smuder**, Matthew B. Hudson, W. Bradley Nelson and Scott K. Powers. Mechanical Ventilation Induces Diaphragmatic Mitochondrial Dysfunction and Increased Oxidant Production. (FASEB 2009).
97. Melissa A. Whidden, Darin J. Falk, **Ashley J. Smuder**, Joseph M. McClung, and Scott K. Powers. Oxypurinol attenuates mechanical ventilation-induced diaphragmatic oxidative stress and contractile dysfunction. (ACRM conference 2007).
98. Melissa A. Whidden, Darin J. Falk, **Ashley J. Smuder**, Joseph M McClung, and Scott K. Powers. Oxypurinol attenuates mechanical ventilation-induced diaphragmatic oxidative stress and contractile dysfunction. (FASEB 2007).

99. Darin J. Falk, Melissa A. Whidden, Andreas N. Kavazis, **Ashley J. Smuder**, Joseph M. McClung, and Scott K. Powers. Hemin administration during mechanical ventilation attenuates redox disturbances in the diaphragm. (FASEB 2007).
100. Darin J. Falk, Joseph M. McClung, Melissa A. Whidden, Andreas N. Kavazis, **Ashley J. Smuder**, and Scott K. Powers. Prevention of mechanical ventilation-induced respiratory muscle weakness. (UF Board of Trustees Meeting 2007).

## **B. INSTRUCTION**

### **COURSES TAUGHT AT UNIVERSITY OF FLORIDA**

#### **Undergraduate Level**

Physiology Lab	APK 2105C
Advanced Exercise Physiology	APK 4112
Directed Independent Study	APK 6900
Research Methods	APK 4050

#### **Graduate Level**

Research Methods	HLP 6535
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### **COURSES TAUGHT AT UNIVERSITY OF SOUTH CAROLINA**

#### **Undergraduate level**

Anatomy and Physiology II	EXSC 224
Undergraduate Research	CHEM 496

#### **Graduate level**

Physiology, Exercise and Disease	EXSC 781
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## **MENTORING**

### **Current Postdoctoral Fellows:**

**Franccesco Boeno**, PhD, 2021 – present

Franccesco's work focuses on hyperbaric oxygen therapy as a countermeasure to combat cervical spinal cord injury-induced neuromuscular dysfunction.

**Cesar Moritz**, PhD, 2021 – present

Cesar's work focuses on doxorubicin chemotherapy and the role of ABC transporters in doxorubicin cellular transport.

**Dryden Baumfalk**, PhD, 2022 – present

Dryden's work focuses on doxorubicin chemotherapy, breast cancer and the protective effects of exercise.

**Previous Postdoctoral Fellows:**

**Rachel Kelley**, PhD, 2020 – 2021

Rachel's work focused on elucidating the contribution of neuromuscular dysfunction to doxorubicin-induced respiratory dysfunction.

**Current Doctoral Students:**

**Ryan Montalvo**, Exercise Physiology, 2017-present

Ryan is currently working on elucidating the contribution of exercise-induced PGC-1 $\alpha$  and autophagy signaling to doxorubicin-induced cardiac and skeletal muscle dysfunction.

Awarded: Behavioral-Biomedical Interface Program Fellowship (NIH fellowship, 2017-2019)

Awarded: SPARC Graduate Research Program Grant (\$5,000); "Effect of increased superoxide dismutase 2 expression on chemotherapy-induced cardiovascular dysfunction." (2018)

Awarded: NIH Diversity Supplement, 2020

Awarded: UF Association of Hispanic Alumni Scholarship, 2021

Awarded: AHA predoctoral fellowship; "Regulation of cardiac mitochondrial turnover following exercise and doxorubicin treatment." (2022-2024)

Awarded: ACSM Predoctoral Research Fellowship, 2022

**Vivian Doerr**, Exercise Physiology, 2018-present

Vivian is currently working on elucidating the role of autophagy and oxidative stress in mediating doxorubicin-induced dysfunction of skeletal muscle.

Awarded: Grinter PhD Fellowship, 2019-2021

Awarded: David & Linda McCaughey Scholarship, 2020

Awarded: Neuromuscular Plasticity T32 Fellowship, 2021-present

Awarded: Dr. Norma M. Leavitt Scholarship, 2021

**Branden Nguyen**, Exercise Physiology, 2019-present

Branden is currently working on elucidating the mechanisms responsible for exercise-induced protection against DOX toxicity in the heart and skeletal muscle.

Awarded: Grinter PhD Fellowship, 2019-2021

Awarded: College of Health and Human Performance Scholarship, 2020

Awarded: Applied Physiology and Kinesiology Distinguished Doctoral Fellowship, 2021-2022

Awarded: BREATHE T32 Fellowship, 2022-present

**Imtiaz Masfique Dowlah**, Exercise Physiology, 2021-present

Imtiaz is currently working on developing a novel preclinical model of doxorubicin chemotherapy treatment.

Awarded: Grinter PhD Fellowship, 2021-2023

**Current Undergraduate Students:**

**Jay Patel**, Exercise Physiology, 2021-present

Jay is assisting on a project designed to determine the effects of doxorubicin on kidney toxicity

Awarded: 2022 University Scholars Program award (\$1,750)

Awarded: 2022 APS Summer Undergraduate Research Fellowship (\$5,600)

**Claire Schreiber**, Exercise Physiology, 2021-present

Claire is assisting on a project designed to determine if hyperbaric oxygen therapy can serve as a countermeasure to prevent doxorubicin-induced respiratory dysfunction.

**Previous Undergraduate Students:**

**Jackie Siegel**, Exercise Physiology, 2020

Jackie assisted on a project to design a clinically relevant animal model of doxorubicin administration.

**Michael Byrnes**, Exercise Science, 2018-2019

Michael assisted with our projects concerning the role of autophagy in chemotherapy-induced skeletal muscle dysfunction.

Awarded: Magellan Scholar award (\$3,000); “Elucidating the contribution of autophagy to doxorubicin-induced muscle dysfunction.”

Awarded: Second place poster award, Discover USC 2019

**John Lynch**, Biomedical Science, 2018-2019

John assisted with our projects concerning the exercise-induced reduction in cardiac and skeletal muscle accumulation of doxorubicin

Awarded: Capstone scholar research grant (\$1,000); “Exercise mechanisms that protect against doxorubicin-induced cardiotoxicity.”

**Meghan Herilla**, Exercise Science Honors Student, 2017-2019

Meghan assisted with our projects on the role of doxorubicin-induced denervation on skeletal muscle function.

Awarded: University of South Carolina: Science Undergraduate Research Fellowship grant (\$2,950)

**Stephanie Vargas**, Exercise Science Honors Student, 2017-2019

Stephanie assisted with our projects on the role of autophagy in chemotherapy-induced cardiac muscle dysfunction.

Awarded: Magellan Scholar award (\$3,000); “Elucidating the contribution of autophagy to doxorubicin-induced muscle dysfunction.”

Awarded: Second place poster award, Discover USC 2019

**Andres Mor**, B.S. Exercise Physiology, 2016-2017

Andres assisted with our projects on exercise-induced protection against doxorubicin myotoxicity.

### **Master's Committee Member**

Zack Salyers, (Graduated Summer 2022) Exercise Physiology, University of Florida

Matthew Bomkamp, (Graduated Summer 2021) Exercise Physiology, University of Florida

### **Ph.D. Committee Member**

Nicholas Balesteri, Exercise Physiology, University of Florida

Stephanie LaPierre, Exercise Physiology, University of Florida

Jinsu Kim, Exercise Physiology, University of Florida

Chatchamarn Soonhuae, Exercise Physiology, University of Florida

Ran Hee Choi (Graduated Spring 2019), Exercise Science, University of South Carolina

Dennis Fix (Graduated Summer 2019), Exercise Science, University of South Carolina

## **C. SERVICE**

### **University of Florida**

Department of Applied Physiology and Kinesiology – Faculty Search Committee

Department of Applied Physiology and Kinesiology – Engineer Search Committee

Department of Applied Physiology and Kinesiology – Graduate Curriculum Committee

Department of Applied Physiology and Kinesiology – Graduate Faculty Committee

Department of Applied Physiology and Kinesiology – TA committee

Department of Applied Physiology and Kinesiology – DEI committee

Center for Respiratory Research and Rehabilitation – Steering Committee Member

### **Journal Peer Reviewer**

American Journal of Physiology: Endocrinology and Metabolism

American Journal of Physiology: Regulatory, Integrative and Comparative

Anesthesiology

Antioxidants

Archives of Physiology and Biochemistry

Biomolecules

Experimental Lung Research

Frontiers in Bioscience

Fundamental and Clinical Pharmacology

International Journal of Molecular Sciences

JACC: CardioOncology

Journal of Applied Physiology

Journal of Cachexia Sarcopenia and Muscle

Journal of Physiology

Journal of Physiological Sciences



Journal of Spinal Cord Medicine  
Life Sciences  
Mitochondrion  
Medicine and Science in Sports and Exercise  
Oncotarget  
Physiology

**Professional and scientific societies**

**Session Chair –**

American Heart Association - Basic Cardiovascular Sciences Scientific Sessions  
Session: Cell death and cardiomyopathy; 8/1/2018

Cancer Cachexia Society – 6<sup>th</sup> Cancer Cachexia Conference  
Session: Therapy-induced muscle dysfunction and wasting; 8/29/2021

Experimental Biology – Featured Topic  
Session: Exercise and cancer care: From the bench to the clinic; 4/5/2022

International Conference on Cachexia, Sarcopenia and Muscle Wasting  
Session: Cancer progression and cachexia; 6/24/2022

**Committee member**

ACSM – Scientific Integration and Leaders committee	2022 – present
APS Muscle Biology group MyBio Planning committee	2022 – present

**Grant reviewer –**

Graduate Women in Science National Fellowship Program	2020
Belgian Foundation against Cancer	2020
NIH CVRS-J80 study section	2021, 2022
NIH MPPA study section	2021
NIH ZRG1 OBT-Y (56) R study section	2022

**Editorial board member –**

Antioxidants	2020 – present
Muscle	2021 – present
Frontiers in Cell and Developmental Biology – Signaling	2021 – present

**Special Issue Editor –**

Antioxidants – Redox control of cardiac and skeletal muscle function Vol I (2021)  
Antioxidants – Redox control of cardiac and skeletal muscle function Vol II (2022)  
Frontiers in Cell and Developmental Biology – Cardiac and Skeletal Muscle  
Response to Exercise (2022)

**MEMBERSHIP IN PROFESSIONAL AND SCIENTIFIC SOCIETIES**

American College of Sports Medicine  
American Heart Association

American Physiological Society  
Cancer Cachexia Society  
Society on Sarcopenia Cachexia and Wasting Disorders