

◇ Kevin Scott Heffernan, Ph.D. ◇

### Academic Affiliations



Syracuse University (2011-)  
Assistant Professor Department of Exercise Science  
Director Human Performance Laboratory  
Research Member Department of Psychology  
Research Member Aging Studies Institute  
Research Member Interdisciplinary Neuroscience Group  
[ksheffer@syr.edu](mailto:ksheffer@syr.edu)



Human Performance Lab

### Education & Training



Tufts Medical Center (2008-2011)

- Post Doctoral Research Fellow
- Division of Cardiology
- Molecular Cardiology Research Institute



Jean Mayer USDA Human Nutrition Research Center on Aging (2009-2011)

- Adjunct Research Scientist



University of Illinois at Urbana-Champaign (2004-2008)

- Ph.D. Kinesiology/Exercise Physiology
- GPA – 3.79



Columbia University (2001-2003)

- M.S. Applied Physiology and Nutrition - May 2003
- GPA – 4.00



University of Scranton (1997-2001)

- B.S. Exercise Science - May 2001
- GPA – 3.59 (*cum laude*)

### Teaching

PPE 295 – Introduction to Exercise Science

PPE 514 – Exercise and Aging

PPE 518 – Cardiovascular Disease: Prevention and Rehabilitation

PPE 606 – Current Literature in Exercise Science and Sports Medicine

PPE 685 – Systemic Exercise Physiology

PPE 753 – Advanced Cardiovascular Exercise Physiology

## General University Service

Syracuse University, Institutional Review Board

## Current Student Advising

Mrs. Jacqueline Augustine (PhD Student, BS College of the Holy Cross)

Mr. Wesley Lefferts (PhD student, BS Skidmore College)

Ms. Kayla Nunemacher (MS student, BS Syracuse University)

## Past Trainees

Dr. Nicole Spartano (current post doctoral research associate, Framingham Heart Study)

Mr. William Hughes (current PhD Student w/ Darren Casey PhD, University of Iowa)

Mr. Matthew Babcock (current PhD Student with Bill Farquhar PhD, University of Delaware)

## Manuscripts Published/In Press

1. Avolio A, Chirinos JA, Cockcroft JR, **Heffernan KS**, Lakatta EG, McEniery C, Mitchell GF, Najjar SS, Nichols WW, Schiffrin EL, Townsend RR, Urbina EM, Weber T, Wilkinson IA. An American Heart Association Scientific Statement on Arterial Stiffness: Recommendations for improving and standardizing vascular research, *Hypertension*, 66(3): 698-722, 2015.
2. Lefferts W, Hughes W, Brutsaert T, White C, **Heffernan KS**. Effect of Acute Nitrate Supplementation on Neurovascular Coupling and Cognitive Performance in Hypoxia, *Applied Physiology Nutrition and Metabolism*, In Press.
3. Babcock MC, Lefferts WK, **Heffernan KS**. Relation between exercise central hemodynamic response and resting cardiac structure and function in young healthy men. *Clinical Physiology and Functional Imaging*, In Press.
4. White C, Vanderdrift L, **Heffernan KS**. Social isolation, cognitive decline and cardiovascular disease risk, *Current Opinion in Psychology*, In Press.
5. Lefferts WK, Hughes W, **Heffernan KS**. Effect of acute high intensity resistance exercise on optic nerve sheath diameter and ophthalmic artery blood flow Pulsatility, *The Journal of Human Hypertension*, In Press.
6. Lefferts WK, Hultquist E, **Heffernan KS**, Fehling P, Smith DS. Vascular and central hemodynamic changes following exercise-induced hyperthermia, *Vascular Medicine*, 20(3): 222-229, 2015.
7. Babcock MC, Lefferts WK, Hughes W, Leyer B, Fitzgerald K, Redmond JG, **Heffernan KS**. Acute effects of high intensity cycling exercise on carotid artery hemodynamic Pulsatility, *European Journal of Applied Physiology*, 115(5): 1037-1045, 2015.
8. **Heffernan KS**, Spartano NL, Augustine JA, Lefferts WK, Hughes WE, Mitchell GF, Jorgensen RS, Gump BB. Carotid artery stiffness and hemodynamic pulsatility during cognitive engagement: A pilot investigation, *American Journal of Hypertension*, 28(5): 615-622, 2015.
9. Jae SY, Kurl S, Laukkanen JA, Choi YH, Park WH, Bunsawat K, **Heffernan KS**, Fernhall B, Kang SM, Park JB. Usefulness of the blood pressure rise prior to exercise stress testing to predict the risk of future hypertension in normotensive men. *American Journal of Cardiology*, 114(8): 1238-1242, 2014.
10. Spartano NL, Lefferts WK, Augustine JA, Gump BB, **Heffernan KS**. The relationship between carotid intima-media thickness and carotid blood pressure reactivity to mental stress. *Atherosclerosis*, 236(2): 227-229, 2014.
11. Hughes W, Spartano NL, Lefferts WK, Augustine JA, **Heffernan KS**. Sex differences in noninvasive estimates of left ventricular pressure energetics but not myocardial oxygen demand in young adults. *Artery Research*, 8(4): 197-204, 2014.

12. Volpe GE, **Heffernan KS**, Imai C, Mangili A, Kuvin JT, Wanke CA. High fat meals do not impair postprandial endothelial function in HIV-infected men. *AIDS Research and Human Retroviruses*, 30(9): 881-887, 2014.
13. Park SH, Yoon ES, Lee YH, Kim CH, Bunsawat K, **Heffernan KS**, Fernhall B, Jae SY. Effects of acute active video games on endothelial function following a high-fat meal in overweight adolescents. *Journal of Physical Activity and Health*, 2014.
14. Augustine JA, Tarzia BJ, Kasprovicz AG, **Heffernan KS**. Effect of a single bout of resistance exercise on arterial stiffness following a high fat meal. *International Journal of Sports Medicine*, 35(11) 894-899, 2014.
15. Lefferts WK, Augustine JA, **Heffernan KS**. Resistance exercise-mediated increases in carotid artery stiffness do not affect cerebral blood flow pulsatility. *Frontiers in Physiology*, 19; 5:101, 2014.
16. Lee YH, Yoon ES, Park SH, **Heffernan KS**, Lee C, Jae SY. Relationship between arterial stiffness and cognitive function is mediated by physical fitness in patients with chronic stroke. *Journal of Rehabilitation Medicine*, 46(5) 413-417, 2014.
17. **Heffernan KS**, Kasprovicz AG, Tarzia BJ, Davies JE, Casey DP. Sex differences in peripheral augmentation index and arterial reservoir pressure during upper limb postural shifts. *Physiology Journal*, 971906, 2014.
18. Spartano NL, Augustine JA, Lefferts WK, Hughes WE, Redmond JG, Martin ED, Kuvin JT, Gump BB, **Heffernan KS**. Arterial stiffness as a non-invasive tissue biomarker of cardiac target organ damage. *Journal of Current Biomarker Findings*, 2014:4, 23-34, 2014.
19. Jae SY, **Heffernan KS**, Fernhall B, Park WH, Choi YH. Cardiorespiratory fitness and incident metabolic syndrome in middle aged men. *Annals of Human Biology*, PMID 24180292, 2014.
20. Yan Y, Ranadive S, **Heffernan KS**, Lane A, Kappus, R, Cook M, Wu PT, Sun P, Harvey I, Woods JA, Wilund KR, Fernhall B. Hemodynamic and arterial stiffness differences between African-Americans and Caucasians following maximal exercise. *American Journal of Physiology: Heart and Circulatory Physiology*, 306: H60-68, 2014.
21. **Heffernan KS**, Lefferts WK, Tarzia BJ, Kasprovicz AG, Thijssen D, Brutsaert T. Manipulation of arterial stiffness, wave reflections and retrograde shear rate in the femoral artery using lower limb external compression. *Physiological Reports*, 1(2):e00022. 2013.
22. **Heffernan KS**, Lefferts WK and Augustine JA. Hemodynamic correlates of late systolic flow velocity augmentation in the carotid artery. *International Journal of Hypertension*, 920605, 2013.
23. Jae SY, Kurl S, Laukkanen KS, **Heffernan KS**, Choi YH, Park JB. Higher blood hematocrit predicts incident hypertension in men. *Journal of Hypertension*, 32:245-250, 2014.
24. **Heffernan KS**, Lefferts WK. A new exercise central hemodynamics paradigm: time for reflection or expansion? *Hypertension*, 62(5): e35.
25. Kappus RM, Fahs CA, Smith D, Horn GP, Agiovlasis S, Rossow L, Jae SY, **Heffernan KS**, Fernhall B. Obesity, Overweight and Arterial Function in Young Otherwise Apparently Healthy Men. *American Journal of Hypertension*, 27(4): 628-634, 2014.
26. **Heffernan KS**, Tarzia BJ, Kasprovicz AG, Lefferts WK, Hatanaka M, Jae SY. Self-reported sitting time is associated with higher pressure from wave reflections independent of physical activity levels in healthy young adults. *American Journal of Hypertension*, 26(8) 1017-23, 2013.
27. Jae SY, Yoon ES, Jung SJ, Park SH, Kim BS, **Heffernan KS**, Fernhall B. Effect of cardiorespiratory fitness on acute inflammation induced increases in arterial stiffness in older adults. *European Journal of Applied Physiology*, 113(8) 2159-2166, 2013.
28. Mendonca G, Teixeira MS, **Heffernan KS**, Fernhall B. Chronotropic and pressor effects of water ingestion at rest and in response to dynamic exercise. *Experimental Physiology*, 98(6): 133-1143; 2013.

29. Warner PW, Al-Quthami A, Brooks EL, Kelley-Hedgepeth A, Patvardhan E, Kuvin JT, **Heffernan KS**, Huggins GS. Augmentation index and aortic stiffness in bicuspid aortic valve patients with non-dilated proximal aortas. *BMC Cardiovascular Disorders*, 13:19; 2013.
30. Morrison S, **Heffernan KS**, Jae SY, Fernhall B, Sosnoff JJ. Aging, hypertension and physiologic tremor: the contribution of the cardioballistic impulse to tremorgenesis in older adults. *Journal of the Neurological Sciences*, 326 (1-2): 68-74; 2013.
31. **Heffernan KS**, Wanke CA, Dong K, Warner PJ, Anskat PE, Karas RH, Kuvin JT. Racial differences in central hemodynamic burden in men with HIV. *Ethnicity and Disease*, 23(2): 217-222; 2013.
32. Cook MD, **Heffernan KS**, Ranadive S, Woods JA, Fernhall B. Effect of resistance exercise training on biomarkers of vascular function and oxidative stress in young African American and Caucasian men, *Journal of Human Hypertension*, 27(6): 388-392; 2013.
33. **Heffernan KS**, Yoon ES, Sharman JE, Davies J, Shih YT, Chen CH, Fernhall B, Jae SY. Resistance exercise training reduces arterial reservoir pressure in older adults with hypertension and pre-hypertension. *Hypertension Research*, 36(5): 422-427; 2013.
34. **Heffernan KS**, Manini T, Hsu FC, Blair SN, Nicklas BJ, Kritchevsky SB, Newman AB, Church TS, Sutton-Tyrrell K, Haskell W, Fielding RA. Pulse pressure is associated with long-distance gait speed in community-dwelling older adults: findings from the LIFE-P study *PLoS One*, 7(11); 2013.
35. **Heffernan KS**, Hau C, Chale A, Cloutier GJ, Phillips EM, Warner P, Nickerson H, Reid KF, Kuvin JT, Fielding RA. Systemic vascular function is associated with muscular power in older adults. *Journal of Aging Research*, 2012:386387; 2012.
36. Jae SY, **Heffernan KS**, Fernhall B, Park WH, Choi YH. Temporal changes in cardiorespiratory fitness and the incidence of hypertension in initially normotensive subjects. *American Journal of Human Biology*, 24: 763-767, 2012.
37. Loenneke JP, Fahs CA, **Heffernan KS**, Rossow LM, Thiebaud RS, Bemben MG. Relationship between muscle mass and augmented pressure from wave reflections in healthy adults. *European Journal of Applied Physiology*, 113: 395-401, 2013.
38. Jae SY, **Heffernan KS**, Yoon ES, Park SH, Choi YH, Fernhall B, Park JB. Pulsatile stress, inflammation and change in arterial stiffness. *Journal of Atherosclerosis and Thrombosis*, 19: 1035-1042, 2012.
39. Lane AD, **Heffernan KS**, Rossow LM, Fahs CA, Ranadive SM, Yan H, Baynard T, Wilund K, Fernhall B. Aortic reservoir function, myocardial demand and coronary perfusion pressure following steady state and interval exercise. *Clinical Physiology and Functional Imaging*, 32(5):353-60, 2012.
40. **Heffernan KS**. How healthy were the arteries of Phidippides? *Clinical Cardiology*, 35(2):65-8, 2012.
41. **Heffernan KS**, Kuvin JT, Patvardhan E, Patel A, Karas RH, Kapur NK. Endothelial function and soluble endoglin in smokers with heart failure. *Clinical Cardiology*, 34(12):729-33, 2011.
42. **Heffernan KS**, Patvardhan E, Kapur NK, Karas RH, and Kuvin JT. Peripheral Augmentation Index as a Biomarker of Vascular Aging: An Invasive Hemodynamics Approach. *European Journal of Applied Physiology*, 112(8):2871-9, 2012.
43. **Heffernan KS**, Patvardhan E, Karas RH, Kuvin JT. Peripheral Augmentation Index is Associated with the Ambulatory Arterial Stiffness Index in Patients with Hypertension. *Cardiology Research*, 2(5): 218-223, 2011.
44. **Heffernan KS**, Ranadive S, Weikert, Lane A, Yan H, Fernhall B, Motl R. Pulse Pressure is Associated with Walking Impairment in Multiple Sclerosis. *Journal of the Neurological Sciences*, 309:105-9, 2011.
45. Kapur NK, **Heffernan KS**, Patel A, Mudd J, Prutkin J, Karas RH. Pulmonary artery pulsatility identifies severe right ventricular dysfunction in acute inferior myocardial infarction. *Catheterization and Cardiovascular Interventions*, 80: 593-600, 2012.

46. **Heffernan KS**. Panvascular dysfunction in Hypertrophic Cardiomyopathy. *American Journal of Hypertension*, 24:735-6, 2011.
47. Patvardhan EA, **Heffernan KS**, Ruan J, Hession M, Warner P, Karas RK, Kuvin JT. Augmentation Index Derived from Peripheral Arterial Tonometry Correlates with Cardiovascular Risk Factors, *Cardiology Research and Practice*, 2011:253758, 2011.
48. Sosnoff JJ, Jae SY, **Heffernan KS**, Fernhall B. Cardiobalistic impulse and fluctuations in isometric force output. *Motor Control*, 15:221-31, 2011.
49. Jae SY, **Heffernan KS**, Fernhall B. Cardiorespiratory fitness and carotid artery intima media thickness in men with type 2 diabetes. *Journal of Physical Activity and Health*, In Press.
50. **Heffernan KS**, Kuvin JT, Sarnak MJ, Perrone RD, Miskulin DC, Rudym D, Chandra P, Karas RH, Menon V. Peripheral augmentation index and vascular inflammation in polycystic kidney disease. *Nephrology Dialysis and Transplantation*, 26:2515-21, 2011.
51. **Heffernan KS**, Maron MS, Patvardhan EA, Karas RH, Kuvin JT. Relation of Pulse Pressure to Blood Pressure Response to Exercise in Patients with Hypertrophic Cardiomyopathy. *American Journal of Cardiology*, 107:600-3, 2011.
52. Hasson CJ, **Heffernan KS**. Dynamic factor analysis for the exercise sciences. *Pediatric Exercise Science*, 23:17-22, 2011.
53. Kapur NK, **Heffernan KS**, Yunis AA, Nguyen TA, Parpos P, Wilson SW, Baker CK, Esposito ML, Shah A, Kimmelstie CD, Weintraub A, Karas RH, Mendelsohn ME. Elevated soluble fms-like tyrosine kinase (sFLT1) levels in acute coronary occlusion. *Arteriosclerosis, Thrombosis and Vascular Biology*, 31:443-50, 2011.
54. **Heffernan KS**, Suryadevara R, Patvardhan EA, Mooney P, Karas RH, Kuvin JT. Effect of atenolol versus metoprolol succinate on vascular function in patients with hypertension. *Clinical Cardiology*, 34:39-44, 2011.
55. Kapur NK, **Heffernan KS**, Yunis AA, Parpos P, Sahasrabudhe N, Kiernan MS, Kimmelstiel CD, Kass DA, Karas RH, Mendelsohn ME. Soluble Endoglin: A Sensitive Biomarker of Left Ventricular Filling Pressure in Heart Failure. *American Journal of Cardiology*, 106:1770-6, 2011.
56. Jae SY, **Heffernan KS**, Fernhall B, Park WH, Choi YH. Increased arterial stiffness with metabolic syndrome is attenuated by high cardiorespiratory fitness in men. *Diabetes Research and Clinical Practice*, 90:326-32, 2010.
57. Cowley PM, Ploutz-Snyder LL, Baynard T, **Heffernan KS**, Jae SY, Hsu S, Lee M, Pitetti KH, Reiman MP, Fernhall B. The Effect of Progressive Resistance Training on Leg Strength, Aerobic Capacity, and Functional Tasks of Daily Living in Persons with Down Syndrome. *Disability and Rehabilitation*, 33(23-24): 2229-2236; 2011.
58. **Heffernan KS**, Sharman JE, Yoon ES, Kim EJ, Jung SJ, Jae SY. Effect of increased preload on the synthesized aortic blood pressure waveform. *Journal of Applied Physiology*, 109:484-90, 2010.
59. Jae SY, **Heffernan KS**, Lee MY, Fernhall B. Relation of heart rate recovery to heart rate variability in spinal cord injury. *Clinical Autonomic Research*, 21:111-6, 2011.
60. **Heffernan KS**, Patvardhan EA, Hession M, Ruan J, Karas RH, Kuvin JT. Elevated Augmentation Index Derived from Peripheral Arterial Tonometry is Associated with Abnormal Ventricular-Vascular Coupling. *Clinical Physiology and Functional Imaging*, 30:313-7, 2010.
61. Rossow L, Fahs CA, Geurra M, Jae SY, **Heffernan KS**, Fernhall B. Acute effects of supramaximal exercise on carotid artery compliance and pulse pressure in young men and women, *European Journal of Applied Physiology*, 110:729-37, 2010.
62. Collier SR, Tobin M, Kelly EE, Diggs M, **Heffernan KS**, Fernhall B. Changes in Arterial Distensibility and Flow Mediated Dilation Following Acute Resistance versus Aerobic Exercise, *Journal of Strength and Conditioning Research*, 24:2846-52, 2010.

63. Jae SY, **Heffernan KS**, Park SH, Jung SH, Ahn ES, Fernhall B. Does an acute inflammatory response temporarily attenuate parasympathetic reactivation in healthy men and women? *Clinical Autonomic Research*, 20:229-233, 2010.
64. Agiovlasis S, **Heffernan KS**, Jae SY, Ranadive SM, Lee M, Mojtahedi MC, Fernhall B. Effects of paraplegia on cardiac autonomic regulation during static exercise. *Journal of Physical Medicine and Rehabilitation*, 89:817-23, 2010.
65. Fahs CA, **Heffernan KS**, Ranadive S, Jae SY, Fernhall B. Aortic stiffness is inversely associated with muscular strength in young men. *Medicine and Science in Sports and Exercise*, 42:1619-24, 2010.
66. Mendonca GV, **Heffernan KS**, Rossow L, Jae SY, Guerra M, Pereira FD, Fernhall B. Gender differences in the cardiac autonomic response to high intensity exercise. *Applied Physiology Nutrition and Metabolism*, 35:439-46, 2010.
67. **Heffernan KS**, Karas RH, Patvardhan EA, Jafri H, Kuvin JT. Peripheral arterial tonometry for risk stratification in men with coronary artery disease. *Clinical Cardiology*, 33: 94-98, 2010.
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69. **Heffernan KS**, Fahs C, Ranadive S, Patvardhan EA. L-arginine as a nutritional prophylaxis against vascular endothelial dysfunction with aging. *Journal of Cardiovascular Pharmacology and Therapeutics*, 15: 17-23, 2010.
70. **Heffernan KS**, Karas RK, Mooney PJ, Patel AR, and Kuvin JT. Pulse wave amplitude is associated with brachial artery diameter: implications for gender differences in microvascular function. *Vascular Medicine*, 15: 39-45, 2010.
71. **Heffernan KS**, Karas RK, Patvardhan EA and Kuvin JT. Endothelial-dependent vasodilation is associated with exercise capacity in smokers and non-smokers. *Vascular Medicine*, 15:119-125, 2010.
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74. Jae SY, **Heffernan KS**, Yoon ES, Lee MK, Fernhall B, Park WH. The inverse association between cardiorespiratory fitness and C-reactive protein is mediated by autonomic function: a possible role of the cholinergic anti-inflammatory pathway. *Molecular Medicine*, 15:291-296, 2009.
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76. **Heffernan KS**, Fahs CA, Iwamoto GA, Jae SY, Wilund KR, Woods JA and Fernhall B. Resistance exercise training reduces central blood pressure and improves microvascular function in African American and white men. *Atherosclerosis*, 207:220-226, 2009.
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78. Jae SY, Carnethon MR, **Heffernan KS**, Fernhall B, Lee MK, Park WH. Heart rate recovery and incidence of type 2 diabetes in men. *Clinical Autonomic Research*, 19:189-192, 2009.
79. La Fontaine MF, **Heffernan KS**, Gossett JD, Bauman WA, De Meersman RE. Transient Suppression of Heart Rate Complexity in Concussed Athletes. *Autonomic Neuroscience: Basic and Clinical*, 148:101-103, 2009.

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81. **Heffernan KS**, Karas RH, Kuvin JT, Vieira VJ, Jae SY, Fernhall B. Carotid artery stiffness, high density lipoprotein cholesterol, and inflammation in men with pre-hypertension. *The Journal of Human Hypertension*, 23:590-596, 2009.
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85. **Heffernan KS**, Sosnoff JJ, Ofori E, Jae SY, Gouloupoulou S, Baynard T, Collier S, Figueroa A, Pitetti K, Woods J, Fernhall B. Complexity of force output during static exercise in individuals with Down Syndrome. *Journal of Applied Physiology*, 106:1227-1233, 2009.
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88. Jae SY, **Heffernan KS**, Lee MK, Fernhall B, Park WH. Association between cardiorespiratory fitness, inflammatory markers, fibrinolytic factors and lipoprotein(a) in patients with type 2 diabetes. *American Journal of Cardiology*, 102:700-703, 2008.
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113. Jae SY, Fernhall B, **Heffernan KS**, Kang M, Lee MK, Choi YH, Hong KP, Ahn ES, Park WH. Exaggerated blood pressure response to exercise is associated with carotid atherosclerosis in healthy men. *Journal of Hypertension*. 24: 881-887, 2006.



114. Jae SY, Fernhall B, **Heffernan KS**, Kang M, Lee MK, Choi YH, Hong KP, Ahn ES, Park WH. Chronotropic Incompetence is associated with Carotid Atherosclerosis in Healthy Men. *European Heart Journal*, 27: 954-959, 2006.
115. **Heffernan KS**, Kelly EE, Collier SR, Fernhall B. Cardiac autonomic modulation during recovery from endurance versus resistance exercise. *European Journal of Cardiovascular Prevention and Rehabilitation*, 13: 80-86, 2006.
116. **Heffernan KS**, Baynard T, Goulopoulou S, Giannopoulou I, Collier SR, Figueroa A, Fernhall B. Baroreflex sensitivity during static exercise in individuals with Down Syndrome. *Medicine and Science in Sports and Exercise*, 37: 2026-2031, 2005.

#### Mentored Student Peer-Reviewed Published Abstracts / Student Conference Presentations

1. Augustine J, Lefferts W, Spartano N, Hughes W, Gump G, **Heffernan KS**. Physical function, cognitive function and aortic stiffness in older adults. *American College of Sports Medicine Meeting*, 2015.
2. \*Lefferts W, Hughes W, Brutsaert T, White C, **Heffernan KS**. Effect of nitrate supplementation on cognitive function and neurovascular coupling in hypoxia. *American College of Sports Medicine Meeting*, 2015.
3. Babcock M, Lefferts W, **Heffernan KS**. Relation between exercise central hemodynamic load and resting cardiac structure and function in young men. *Mid-Atlantic Regional Chapter of the American College of Sports Medicine*, 2014.
4. Nunemacher K, Augustine J, Benevento E, Columna L, Luke M, Russo N, Lowmy T, Ingram E, **Heffernan KS**. Social inclusion, movement and cardiovascular disease risk in adults with intellectual disabilities. *American College of Sports Medicine Meeting*, 2015.
5. \*Augustine J, Lefferts W, Spartano N, Hughes W, Gump G, **Heffernan KS**. Physical function, cognitive function and aortic stiffness in older adults. *Mid-Atlantic Regional Chapter of the American College of Sports Medicine*, 2014.
6. \*Lefferts W, Hughes W, White C, Brutsaert T, **Heffernan KS**. Effect of acute nitrate ingestion on cognitive function and neurovascular coupling at high altitude. *Mid-Atlantic Regional Chapter of the American College of Sports Medicine*, 2014.
7. \*Babcock M, Lefferts W, **Heffernan KS**. Relation between exercise central hemodynamic load and resting cardiac structure and function in young men. *Mid-Atlantic Regional Chapter of the American College of Sports Medicine*, 2014.
8. Augustine J, Lefferts W, Martin E, Spartano N, **Heffernan KS**. Vascular function in exercise-trained women. *American College of Sports Medicine Meeting*, 2014.
9. Hughes W, Spartano N, Lefferts W, Augustine J, **Heffernan KS**. Sex differences in noninvasive estimates of myocardial oxygen demand and left ventricular pressure energetics. *American College of Sports Medicine Meeting*, 2014.
10. Lefferts WK, Augustine JA, **Heffernan KS**. Acute resistance exercise and the cerebrovasculature: differential effects on pressure and flow pulsatility. *American College of Sports Medicine Meeting*, 2014.
11. Spartano N, Augustine J, Lefferts W, Hughes W, Martin E, Gump B, **Heffernan KS**. Physical activity is associated with attenuated carotid blood pressure reactivity during mental stress. *American College of Sports Medicine*, 2014.
12. Martin E, Augustine J, Spartano N, Lefferts W, **Heffernan KS**. Body fat, pulsatile load and arterial stiffness in non-obese women. *American College of Sports Medicine Meeting*, 2014.
13. Redmond JG, Babcock MC, Leyer B, Fitzgerald K, Lefferts WK, Hughes W, **Heffernan KS**. Relation of body composition to anaerobic power in Division I women's ice hockey players. *American College of Sports Medicine Meeting*, 2014.

14. Babcock MC, Leyer B, Fitzgerald K, Lefferts WK, Hughes W, Redmond JG, **Heffernan KS**. No sex differences in carotid artery stiffness and blood flow pulsatility following high intensity exercise. *American College of Sports Medicine Meeting*, 2014.
15. Fitzgerald K, Babcock MC, Hughes W, Lefferts WK, Leyer B, Redmond JG, **Heffernan KS**. Aortic wave reflections are associated with anaerobic power production in young adults. *American College of Sports Medicine Meeting*, 2014.
16. \*Augustine J, Lefferts W, Martin E, Spartano N, **Heffernan KS**. Vascular function in exercise-trained women. *Mid-Atlantic Regional Chapter of the American College of Sports Medicine*, 2013.
17. Hughes W, Spartan N, Lefferts W, Augustine J, **Heffernan KS**. Sex differences in arterial stiffness and left ventricular pressure energetics. *Mid-Atlantic Regional Chapter of the American College of Sports Medicine*, 2013.
18. Martin E, Augustine J, Spartano N, Lefferts W, **Heffernan KS**. No association between body fat and arterial stiffness in non-obese women. *Mid-Atlantic Regional Chapter of the American College of Sports Medicine*, 2013.
19. Spartano N, Augustine J, Lefferts W, Hughes W, Martin E, Gump B, **Heffernan KS**. Carotid blood pressure reactivity is associated with carotid intima-media thickness independent of central adiposity. *Mid-Atlantic Regional Chapter of the American College of Sports Medicine*, 2013.
20. Lefferts W, Augustine J, **Heffernan KS**. Resistance exercise, carotid artery stiffness and cerebral blood flow pulsatility. *Mid-Atlantic Regional Chapter of the American College of Sports Medicine*, 2013.
21. \*Kasprowicz A, Tarzia B, Davies J, Casey D, **Heffernan KS**. Sex Differences in the Hemodynamic Response To Reductions In Radial Artery Transmural Pressure With Arm Elevation; *Mid-Atlantic Regional Chapter of the American College of Sports Medicine*, 2012.
22. \*Tarzia B, Kasprowicz A, Lefferts W, **Heffernan KS**. Physical activity, sedentary behavior and blood pressure in young adults; *Mid-Atlantic Regional Chapter of the American College of Sports Medicine*; 2012.
23. \*Augustine J, Tarzia B, Kasprowicz A, **Heffernan KS**. Vascular function following a high fat meal with resistance exercise; *Mid-Atlantic Regional Chapter of the American College of Sports Medicine*, 2012.
24. Lefferts W, Hultquist E, **Heffernan KS**, Fehling P, Smith DS. Vascular changes following exercise-induced hyperthermia; *Mid-Atlantic Regional Chapter of the American College of Sports Medicine*, 2012.

\*Student award winner

<b>Select Published Abstracts / Conference Presentations (from over 120)</b>
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1. †**Heffernan KS**. Arterial stiffness and central hemodynamics: a primer for the exercise scientist. *American College of Sports Medicine Meeting*, 2015.
2. **Heffernan KS**, Spartano NL, Lefferts WK, Augustine JA, Hughes WE, Gump BB. Arterial stiffness and pressure from wave reflections during cognitive challenge in children and adults, *American College of Sports Medicine Meeting*, 2014.
3. \***Heffernan KS**, Lefferts WK, Tarzia BJ, Kasprowicz AG, Thijssen D, Brutsaert T. Arterial stiffness and shear rate patterns in the femoral artery during lower limb reductions in transmural pressure. *American College of Sports Medicine Meeting*, 2013.
4. **Heffernan KS**, Sharman JE, Davies J, Yoo E, Fernhall B, Jae SY. Effect of resistance exercise training on arterial reservoir pressure in older adults with hypertension and pre-hypertension. *American College of Sports Medicine Meeting*, 2012.

5. \***Heffernan KS**, Kuvin JT, Karas RH, Preston IR, Hill NS, Roberts KE. Peripheral Vascular Endothelial Function and the Pulmonary Blood Pressure Response to Exercise in Pulmonary Hypertension. *American College of Sports Medicine Meeting*, 2011.
6. **Heffernan KS**, Kuvin JT, Karas RH, Preston IR, Hill NS, Roberts KE. Peripheral Vascular Endothelial Function and the Pulmonary Blood Pressure Response to Exercise in Pulmonary Hypertension. *American Thoracic Society Annual International Conference*, 2011.
7. †**Heffernan KS**, Arterial Stiffness: A primer for the clinical cardiologist, *American College of Cardiology Conference*, 2011.
8. **Heffernan KS**, Manini T, Blair SN, Hsu FC, Nicklas BJ, Kritchevsky SB, Newman AB, Church TS, Sutton-Tyrrell K, Haskell W, Karas RH, Kuvin JT, Fielding RA. Pulse pressure is associated with long-distance gain speed in community-dwelling older adults: findings from the LIFE-P study. *American Heart Association Scientific Sessions*, 2010.
9. **Heffernan KS**, Maron M, Patvardhan E, Karas RH, Kuvin JT. Arterial elastance is associated with exercise capacity in patients with hypertrophic cardiomyopathy. *American College of Sports Medicine Annual Conference*, 2010.
10. **Heffernan KS**, Maron M, Patvardhan E, Karas RH, Kuvin JT. Elevated peripheral augmentation index and pulse wave amplitude in hypertrophic cardiomyopathy. *American College of Cardiology Conference*, 2010.
11. **Heffernan KS**, Maron M, Patvardhan E, Karas RH, Kuvin JT. Elevated pulse pressure is associated with an abnormal blood pressure response to exercise in hypertrophic cardiomyopathy. *American College of Cardiology Conference*, 2010.
12. **Heffernan KS**, Karas RH, Kuvin JT, Lee MK, Choi YH, Jae SY. Higher prevalence of carotid atherosclerosis in men with low HDL-cholesterol is not related to cardiorespiratory fitness or inflammation. *American College of Cardiology*, 2010.
13. **Heffernan KS**, Rudym D, Kuvin JT, Karas RH, Miskulin D, Perrone R, Sarnak M, Menon V. Vascular function and vascular inflammation in polycystic kidney disease. *American Heart Association Scientific Sessions*, 2009.
14. **Heffernan KS**, Suryadevara R, Mooney P, Karas RH, and Kuvin JT. Extended release niacin therapy improves HDL-cholesterol but not vascular endothelial function in smokers, *International Symposium on Atherosclerosis*, 2009.
15. **Heffernan KS**, Patvardhan E, Karas RH, and Kuvin JT. Association between exercise capacity and vascular endothelial function in chronic smokers, *International Symposium on Atherosclerosis*, 2009.
16. **Heffernan KS**, Fahs CA, Jae SY, Iwamoto GA, Wilund KR, Woods JA and Fernhall B. The effect of resistance training on vascular function and central blood pressure in African American men, *American College of Sports Medicine Annual Conference*, 2009.
17. **Heffernan KS**, Suryadevara R, Mooney P, Karas RH, Kuvin JT. The effect of beta-blockers on ambulatory arterial stiffness index and wave reflection in patients with hypertension. *The American College of Cardiology Annual Scientific Sessions*, 2009.
18. **Heffernan KS**, Jae SY and Fernhall B. Racial differences in vascular function are not mediated by inflammation, cardiorespiratory fitness or body fat. *American Heart Association Scientific Sessions*, 2008.
19. \***Heffernan KS**, Fahs CA, Shinsako KK, Sosnoff JJ, Jae SY and Fernhall B. Fractal Properties Of Heart Rate Following Resistance Training: Chaotic Times Call For Chaotic Measures. *American College of Sports Medicine Annual Conference*, 2008.
20. **Heffernan KS**, Fahs CA, Jae SY, and Fernhall B. Resistance exercise training improves heart rate recovery in young men. *American Heart Association Scientific Sessions*, 2007.
21. **Heffernan KS**, Jae SY, Echols G, Lepine N, and Fernhall B. African American Men Have Attenuated Reductions in Peripheral Artery Stiffness Following Exercise. *American College of Sports Medicine Annual Conference*, 2007.

22. **Heffernan KS**, Edwards DG, Rossow L, Jae SY, and Fernhall B. Mechanical compression reduces regional arterial stiffness *ACSM Conference on Integrative Physiology of Exercise*, 2006.
23. **Heffernan KS**, Jae SY, Kelly EE, and Fernhall B. Arterial stiffness following repeated Valsalva maneuvers: implications for resistance exercise *American College of Sports Medicine Annual Conference*, 2006.
24. **Heffernan KS**, Collier SR, Kelly EE, Schmitt L, Tobin M, and Fernhall B. Arterial Stiffness and Baroreflex Sensitivity Following Acute Resistance versus Aerobic Exercise. *American College of Sports Medicine Annual Conference*, 2005.
25. **Heffernan KS**, Baynard T, Goulopoulou S, Giannopoulou I, Collier SR, Figueroa A, and Fernhall B. Alterations in baroreflex sensitivity do not explain attenuated responses to sympathoexcitation in Down Syndrome. *American College of Sports Medicine Annual Conference*, 2004.

\**Oral communication*  
† *Symposium*

#### Authored Book Chapters

- W. Nichols, **K.S. Heffernan** and J.A. Chirinos. Overview of the normal structure and function of the macrocirculation and microcirculation. In: *Arterial Disorders*; Eds G. Mancia. 2015
- B. Fernhall and **K.S. Heffernan**. Resistance Training Strategies for Individuals With Mental Retardation. In: *Resistance Training for Special Populations*; A.M. Swank Eds. 2012
- **K.S. Heffernan**. Exercise stress testing in asymptomatic patients and its relation to subclinical atherosclerotic disease. In: *Asymptomatic Atherosclerosis: Detection, Treatment, and Monitoring*; Eds. M Naghavi et al. 2010

#### Funded Research Support/Grants

1. Dairy Research Institute, Dairy Management Inc (\$350,000) - PI  
*Whey protein, vascular function and cognition in older adults* (2012-2016)
2. National Institutes of Health (R01, \$480,000) – co-I  
*Environmental Toxicants, Race and Cardiovascular Disease Risk in Children* (2013-2016)
3. Center for Aging Policy Studies (P30, \$30,000) – Project Director  
*Social isolation, physical inactivity and vascular function in older adults* (2013-2014)
4. NIH- Center for AIDS Research (\$40,000) –PI  
*Racial differences in vascular function in patients with HIV* (2010)
5. Tufts Clinical and Translational Sciences Institute (\$30,000) – Co-I  
*The effect of genetic variants on the relation between fatty liver and cardiovascular disease risk in HIV infection* (2009)
6. American College of Sports Medicine Foundation Research Grant (\$10,000) – PI  
*The effect of combined resistance training and whey protein supplementation on vascular function and inflammation in mobility-limited older adults* (2009)
7. American Heart Association Pre-doctoral Fellowship (\$52,000) – PI  
*Vascular and Neuro-Inflammatory Modulations Following Resistance Training in African American Males* (competitive renewal 2007-2008)
8. American Heart Association Pre-doctoral Fellowship (\$26,000) – PI  
*Vascular and Neuro-Inflammatory Modulations Following a Resistance-Training Intervention in African American Males* (2006-2007)
9. The Roger Morse Outstanding Graduate Student Award (\$2500) – PI  
*Neuro-immune Correlates of Vascular Function Following Resistance Training in Young African American Men* (2007)
10. American College of Sports Medicine Student Research Grant (\$5000) – PI

*Resistance Training and Arterial Function in African American Males* (2005)

11. The Benjamin Massey Memorial Research Grant (\$1000) – PI

*Resistance Training and Vascular Function in African American Males* (2005)

12. Gatorade Sport Science Institute (\$500) – PI

*Acute Resistance Exercise and Arterial Stiffness* (2005)

13. Life Fitness (\$5000) – Co-PI

*Mechanisms of Resistance Exercise-Induced Post Exercise Hypotension* (2004)

14. Sydney Young Research Scholarship (\$400) – PI

*Arterial and Autonomic Correlates of Resistance Exercise-Induced Post Exercise Hypotension* (2004)

15. Pinnacle/Bodyonics Student Sports Nutrition Grant (\$1000) – PI (2003)

#### **Student Mentored Research Support**

1. Wesley Lefferts - Joan N. Burstyn Endowed Fund for Collaborative Research in Education (\$2,400)  
*Effects of exercise on biomarkers of brain function at high altitude* (2015)

2. Wesley Lefferts - American College of Sports Medicine Student Research Grant  
(\$5,000) *Dietary Nitrates, Hypoxic Cerebrovascular Response and Cognitive Function in Young Men*  
(2014)

3. Jacqueline Augustine - Joan N. Burstyn Endowed Fund for Collaborative Research in Education  
(\$2,000) *The effect of resistance exercise on vascular function following a high fat meal* (2011)

#### **Unfunded Research Grants**

1. *Racial differences in vascular function and neurocognitive plasticity* – AHA 2012
2. *Resistance exercise, vascular function and neurocognitive performance* – AHA 2013
3. *Type 2 diabetes, glycation and vascular dysfunction* – DRWF 2014
4. *Impact of vascular dysfunction in Type 2 diabetes on neurovascular coupling* – NIH 2015

#### **Honors/Awards**

- North American Artery Society – Young Investigator Award (2013)
- American College of Sports Medicine- New Investigator Award (2010)

#### **Professional Associations**

- American College of Sports Medicine (ACSM)
- American Heart Association (AHA)
  - ✓ Clinical Behavioral Science Peer Review Study Group
- Association for Research into Arterial Structure and Physiology (ARTERY)
- North American ARTERY Society (organizing board)
- National Physical Activity Society (NPAS)

#### **External Grant Reviewer**

- American Heart Association
- American College of Sports Medicine
- Dairy Research Institute
- National Health and Medical Research Council of Australia
- Natural Sciences and Engineering Research Council of Canada

#### **Invited Speaker (since 2013)**

- 14th International Conference on Long-Term Complications of Treatment of Children and Adolescents for Cancer – *Exercise to Delay Vascular Aging (2015 Keynote Speaker)*
- Columbia University – *Exercise as Vascular Medicine (2015)*
- Michigan Technological University – *Resistance exercise, stiff arteries and the brain (2014)*
- University of Missouri – *Arterial stiffness, cerebral blood flow and cognitive function (2014)*
- University of Illinois-Chicago – *Arterial stiffness and cerebral blood flow during cognitive engagement: neurovascular coupling or the odd couple (2013)*
- University of Scranton – *Allow myself to introduce...myself: my exercise science journey and life after 'kegs and eggs' (2013)*

#### **Invited (*Ad Hoc*) Journal Reviewer/Editorial Service (since 2011)**

*Acta Physiologica, American Journal of Cardiology, American Journal of Clinical Nutrition, American Journal of Hypertension, American Journal of Physical Medicine and Rehabilitation, American Journal of Physiology: Heart and Circulatory Physiology, American Journal of Physiology: Regulatory, Integrative and Comparative Physiology, Applied Physiology Nutrition and Metabolism, Arteriosclerosis Thrombosis and Vascular Biology, Atherosclerosis, Autonomic Neuroscience, Biology of Sex Differences, Brain Behavior and Immunity, British Journal of Clinical Pharmacology, British Journal of Nutrition, British Journal of Sports Medicine, Cardiovascular Diabetology, Clinical Cardiology, Clinical Physiology and Functional Imaging, Drug Design Development and Therapy, Echocardiography, Ethnicity & Disease, European Journal of Applied Physiology, Experimental Gerontology, Experimental Physiology, Gender Medicine, Hypertension, Hypertension Research, International Journal of Sports Medicine, International Journal of Sports Physiology and Performance, International Journal of Therapy and Rehabilitation, International Journal of Vascular Medicine, Journal of Aging Research, Journal of the American Dietetic Association, Journal of the American Society of Hypertension, Journal of Applied Physiology, Journal of Human Hypertension, Journal of Inflammation Research, Journal of Science and Medicine in Sports, Journal of Nutrition, Journal of Sports Medicine, Journal of Sports Rehabilitation, Journal of Vascular Research, Kidney International, Measurement in Physical Education and Exercise, Medical Science Monitor, Medicine and Science in Sports and Exercise, Neuroendocrinology, Nutrition Journal, Nutrition Metabolism and Cardiovascular Disease, Nutrition Research, Obesity, Pediatric Exercise Science, Physiology and Behavior, Psychophysiology, Reproductive Sciences, Scandinavian Journal of Medicine and Science in Sports, Scientific Reports, Vascular Health and Risk Management, Vascular Medicine*