

# Ryan S. Garten Ph.D.

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## Positions

### **Assistant Professor**

Department of Kinesiology and Health Sciences  
Virginia Commonwealth University  
Richmond, VA

## Education

**August 2011**

### **Doctor of Philosophy**

Exercise Physiology  
University of North Carolina at Greensboro  
Advisor: Allan H. Goldfarb, Ph.D. FACSM, FAAKPE  
**Dissertation:** The Effects of Partial Vascular Occlusion on Oxidative Stress Markers in Young Resistance Training Males

**August 2006**

### **Master of Science**

Exercise Physiology  
The University of Mississippi, University, Mississippi  
Advisor: Edmund Acevedo, Ph.D., FACSM  
**Thesis:** Balance, Gait, and Physiological Responses in Professional Firefighters Wearing Rubber and Leather Boots Participating in a Fire Simulation Activity

**May 2004**

### **Bachelor of Science**

Exercise and Sport Science  
The University of Mississippi, University, Mississippi  
Advisor: Edmund Acevedo, Ph.D., FACSM

## Professional Experience

**1/2013-7/2015**

**Advanced Research Fellow in Geriatrics**  
**Utah Vascular Research Laboratory**  
**Geriatric Research, Education, and Clinical Center**  
**George E Whalen Veterans Affairs Medical Center, Salt Lake City, UT**  
Director: Russell Richardson Ph.D.

**11/2011-1/2013**

**Post-Doctoral Fellow**  
**Utah Vascular Research Laboratory**  
**School of Internal Medicine (Division of Geriatrics)**  
**University of Utah, Salt Lake City, UT**  
Director: Russell Richardson Ph.D.

- 8/2010 – 8/2011**      **Instructor**  
**Health and Human Performance Department**  
Virginia Commonwealth University  
Richmond, VA
- 8/2006 – 8/2010**      **Graduate Assistant**  
**Kinesiology**  
UNC-Greensboro  
Greensboro, NC
- 8/2005 – 8/2006**      **Graduate Assistant**  
**Federal Emergency Management Association Firefighter Fitness Grant**  
**Health, Exercise Science and Recreation Management**  
The University of Mississippi  
University, MS
- 8/2004 – 8/2005**      **Graduate Teaching & Research Assistant**  
**Health, Exercise Science and Recreation Management**  
The University of Mississippi  
University, MS

### Courses Taught

#### **Virginia Commonwealth University**

##### **HPEX 495/496 – Clinical Experience IV**

- Fall 2010 and Spring 2011
- Served as Internship Coordinator for 300 and 600 hour internships in the Exercise Science and Community Health Education field.

##### **HPEX 470 – Exercise Programming and Leadership**

- Fall 2010 and Summer 2011
- Taught from “Essentials of Strength Training and Conditioning” 3<sup>rd</sup> Edition.
- Course focused on basic exercise science principles, exercise testing and evaluation, aerobic and anaerobic exercise prescription and principles, and facility organization and administration.

##### **HPEX 441 – Assessment and Exercise Intervention**

- Fall 2010, Spring 2011 (2 sections) and Fall 2015
- Taught from “ACSM’s Guidelines for Exercise Testing and Prescription” 8<sup>th</sup> Edition.
- Helped students prepare for ACSM Health Fitness Specialist Certification.
- Course focused on risk assessment and stratification, exercise prescription for healthy and special populations, and metabolic calculations.
- Tested students on their proficiency at hands-on assessments such as exercising HR and BP, ECG placement, skinfold technique, and graded exercise testing protocols (i.e. YMCA test).

### **HPEX 440 – Chronic Disease and Exercise Management**

- Spring 2011
- Taught from “ACSM’s Exercise Management for Persons with Chronic Disease and Disabilities” 3<sup>rd</sup> Edition.
- Course focused on pathophysiology, acute and chronic exercise response, management and medication, and exercising testing and programming for individuals with chronic diseases.

### **HPEZ 375 – Exercise Physiology Lab**

- Fall 2010 (3 sections) and Spring 2011 (3 sections)
- Introduced students to concepts and specific measurement of heart rate, blood pressure, aerobic and anaerobic power, body composition, muscular strength and endurance and ECG placement.

### **HPEZ 200 – Introduction to Strength, Endurance, and Flexibility Training**

- Summer 2011
- Introduced students to basic principles of physical activity and exercise and their effect on chronic disease and health.

## **UNC-Greensboro**

### **KIN 375 – Exercise Physiology**

- Summer 2007, Fall 2007, Spring 2008, and Summer 2008
- Taught from “Exercise Physiology: Energy, Nutrition, and Human Performance” McArdle, Katch, and Katch, 6<sup>th</sup> Edition.
- Course focused on basic concepts related to exercise physiology such as bioenergetics and exercise metabolism, cardiovascular and muscle physiology, neural and ventilatory control, nutrition, and human performance factors and training.

### **KIN 375-L – Exercise Physiology Lab**

- Nine Total Sections Taught from Fall 2006 through Summer 2010
- Introduced students to concepts and specific measurement of heart rate, blood pressure, aerobic and anaerobic power, body composition, muscular strength and endurance, and ECG placement.

### **KIN 131 – Jogging**

- Fall 2006 and Spring 2007
- Guided students as they progressed through a 5K or 10K training program.

## **University of Mississippi**

### **EL 124 – Racquetball**

- Fall 2004 and Spring 2005
- Taught the rules and strategy of racquetball.
- Worked with students to improve racquetball technique.

## Publications

1. Gifford JR, **Garten RS**, Nelson AD, Trinity JD, Layec G, Witman MA, Weavil JC, Mangum T, Hart C, Etheredge C, Jessop J, Bledsoe A, Morgan DE, Wray DW, Richardson RS (2015). Symmorphosis and Skeletal Muscle  $VO_2$ max: In Vivo and In Vitro Measures Reveal Differing Constraints in the Exercise-trained and Untrained Human. *J Physiol*. (In Press)
2. Lee JF, Barrett-O'Keefe Z, **Garten RS**, Nelson AD, Ryan JJ, Nativi JN, Richardson RS, Wray DW (2015). Evidence of microvascular dysfunction in heart failure with preserved ejection fraction. *Heart*. (In Press)
3. Gifford J.R., Trinity J.D., Layec G., **Garten R.S.**, Park S.Y., Rossman M.J., Larsen S., Dela F., Richardson R.S. (2015). Quadriceps exercise intolerance in patients with chronic obstructive pulmonary disease: the potential role of altered skeletal muscle mitochondrial respiration. *J Appl Physiol (1985)*. Oct 15;119(8):882-8.
4. Rossman MJ, Trinity JD, **Garten RS**, Ives SJ, Conklin JD, Barrett-O'Keefe Z, Witman MA, Bledsoe AD, Morgan DE, Runnels S, Reese VR, Zhao J, Amann M, Wray DW, Richardson RS. (2015). Oral antioxidants improve leg blood flow during exercise in patients with chronic obstructive pulmonary disease. *Am J Physiol Heart Circ Physiol*. Sep;309(5):H977-85.
5. Witman MA, **Garten RS**, Gifford JR, Groot HJ, Trinity JD, Stehlik J, Nativi JN, Selzman CH, Drakos SG, Richardson RS. (2015). Further Peripheral Vascular Dysfunction in Heart Failure Patients With a Continuous-Flow Left Ventricular Assist Device: The Role of Pulsatility. *JACC Heart Fail*. Sep;3(9):703-11.
6. **Garten RS**, Goldfarb A, Crabb B, Waller J. (2015). The Impact of Partial Vascular Occlusion on Oxidative Stress Markers during Resistance Exercise. *Int J Sports Med*. Jun;36(7):542-9.
7. Sidhu SK, Weavil JC, Venturelli M, **Garten RS**, Rossman MJ, Richardson RS, Gmelch BS, Morgan DE, Amann M. (2014). Spinal  $\mu$ -opioid receptor-sensitive lower limb muscle afferents determine corticospinal responsiveness and promote central fatigue in upper limb muscle. *J Physiol*. Nov 15;592(Pt 22):5011-24.
8. Goldfarb AH, **Garten RS**, Waller J, Labban JD. (2014). Day to Day Variability and Reliability of Blood Oxidative Stress Markers within a Four-Week Period in Healthy Young Men. *J Biomark*. 2014;248-313.
9. McKenzie, M.J., Goldfarb, A.H., **Garten, R.S.**, Vervaecke, L. (2014). Oxidative Stress and Inflammation Response Following Aerobic Exercise: Role of Ethnicity. *Int J Sports Med*, 35 (10), 822-827.
10. Park, S. Y., Gifford, J. R., Andtbacka, R. H., Hyngstrom, J. R., **Garten, R. S.**, Diakos, N. A., . . . Richardson, R. S. (2014). Cardiac, Skeletal, and smooth muscle mitochondrial respiration: Are all mitochondria created equal? *Am J Physiol Heart Circ Physiol*, 307 (3): H346-352.
11. Rossman, M. J., **Garten, R. S.**, Venturelli, M., Amann, M., & Richardson, R. S. (2014). The role of active muscle mass in determining the magnitude of peripheral fatigue during dynamic exercise. *Am J Physiol Regul Integr Comp Physiol*, 306 (12): R934-940.
12. **Garten, R. S.**, Groot, H. J., Rossman, M. J., Gifford, J. R., & Richardson, R. S. (2014). The role of muscle mass in exercise-induced hyperemia. *J Appl Physiol (1985)*, 116(9), 1204-1209.
13. Ives, S. J., Harris, R. A., Witman, M. A., Fjeldstad, A. S., **Garten, R. S.**, McDaniel, J., . . . Richardson, R. S. (2014). Vascular dysfunction and chronic obstructive pulmonary disease: the role of redox balance. *Hypertension*, 63(3), 459-467.

14. Rossman, M. J., **Garten, R. S.**, Groot, H. J., Reese, V., Zhao, J., Amann, M., & Richardson, R. S. (2013). Ascorbate infusion increases skeletal muscle fatigue resistance in patients with chronic obstructive pulmonary disease. *Am J Physiol Regul Integr Comp Physiol*, 305(10), R1163-1170.
15. Webb, H. E., **Garten, R. S.**, McMinn, D. R., Beckman, J. L., Kamimori, G. H., & Acevedo, E. O. (2011). Stress hormones and vascular function in firefighters during concurrent challenges. *Biol Psychol*, 87(1), 152-160.
16. Goldfarb, A. H., **Garten, R. S.**, Cho, C., Chee, P. D., & Chambers, L. A. (2011). Effects of a fruit/berry/vegetable supplement on muscle function and oxidative stress. *Med Sci Sports Exerc*, 43(3), 501-508.
17. Huang, C. J., Webb, H. E., **Garten, R. S.**, Kamimori, G. H., & Acevedo, E. O. (2010). Psychological stress during exercise: lymphocyte subset redistribution in firefighters. *Physiol Behav*, 101(3), 320-326.
18. Huang, C. J., Webb, H. E., **Garten, R. S.**, Kamimori, G. H., Evans, R. K., & Acevedo, E. O. (2010). Stress hormones and immunological responses to a dual challenge in professional firefighters. *Int J Psychophysiol*, 75(3), 312-318.
19. Webb, H. E., McMinn, D. R., **Garten, R. S.**, Beckman, J. L., Kamimori, G. H., & Acevedo, E. O. (2010). Cardiorespiratory responses of firefighters to a computerized fire strategies and tactics drill during physical activity. *Appl Ergon*, 41(3), 376-381.
20. Huang, C. J., **Garten, R. S.**, Wade, C., Webb, H. E., & Acevedo, E. O. (2009). Physiological responses to simulated stair climbing in professional firefighters wearing rubber and leather boots. *Eur J Appl Physiol*, 107(2), 163-168.
21. Goldfarb, A. H., **Garten, R. S.**, Chee, P. D., Cho, C., Reeves, G. V., Hollander, D. B., . . . Kraemer, R. R. (2008). Resistance exercise effects on blood glutathione status and plasma protein carbonyls: influence of partial vascular occlusion. *Eur J Appl Physiol*, 104(5), 813-819.

### Conference Presentations

1. **Garten, R.S.**, H.J. Groot, M.J. Rossman, J.R. Gifford, Richardson R.S. (May 2015) Aerobic Capacity Augments Passive Limb Movement-Induced Hyperemia. Poster Presentation at American College of Sports Medicine Conference, San Diego, CA.
2. **Garten, R.S.**, Rossman, M.J., Trinity, J.T., Ives, S.J., Reese, V., Richardson, R.S. (May 2014) Skeletal Muscle Free Radical Outflow During Submaximal Exercise. The Effect Of Age. Thematic Poster Presentation at American College of Sports Medicine Conference, Orlando, FL.
3. **Garten, R.S.**, H.J. Groot, M.J. Rossman, J.R. Gifford, Richardson R.S. (June 2013). Is Normalizing Exercise-Induced Blood Flow for Muscle Mass Necessary? Poster Presentation at American College of Sports Medicine Conference, Indianapolis, IN.
4. **Garten, R.S.**, Goldfarb A.H. FACSM, Crabb B.E., Gomashe C. (June 2011) Partial Vascular Occlusion Effect on Oxidative Stress Markers in Young Resistance Training Individuals. Poster Presentation at American College of Sports Medicine Conference, Denver, CO.
5. **Garten, R.S.**, Goldfarb A.H. FACSM, Cho, C., Chee, P.D.M. (February, 2009) Creatine Kinase and Muscle Soreness Responses to Eccentric Exercise: Effect of Fruit/Vegetable Concentrate Supplementation. Poster Presentation at Southeast American College of Sports Medicine Conference, Birmingham, AL.
6. **Garten, R.S.**, Kraemer, R.R. FACSM, Cho, C., Chee, P.D.M., Reeves, G.V., Hollander, D.B., Thomas, C., Francois, M., Goldfarb, A.H. FACSM. (May, 2008) Resistance Exercise Effects on

Blood Protein Carbonyls and Glutathione Status: Influence of Partial Vascular Occlusion. Poster Presentation at American College of Sports Medicine Conference, Indianapolis, IN.

7. **Garten, R.S.**, Kraemer, R.R. FACSM, Cho, C., Chee, P.D.M., Reeves, G.V., Hollander, D.B., Thomas, C., Francois, M., Goldfarb, A.H. FACSM. (February, 2008) Effect of Light or Moderate Resistance Exercise With or Without Partial Vascular Occlusion on Blood Protein Carbonyls Levels. Poster Presentation at Southeast American College of Sports Medicine Conference, Birmingham, AL.
8. **Garten, R.S.**, Webb, H.E., McMinn, D.R., Beckman, J.L., Kamimori, G.H., & Acevedo, E.O. (February, 2007). Psychoneuroimmunological Responses to Dual Stressors. Oral Presentation at the Southeast American College of Sport Medicine Conference, Charlotte, NC.

### **Published Abstracts**

1. Webb H.E., McMinn D.R., **Garten R.S.**, Beckman J.L., Kamimori G.H., Acevedo E.O. (2006). Neuroendocrine and Hemostatic Responses in Firefighters During Physical and Psychological Stress. *Medicine and Science in Sports and Exercise*. Volume 38(5): S454.
2. Webb H.E., **Garten R.S.**, McMinn D.R., Beckman J.L., Kamimori G.H., Acevedo E.O. (2007). Neuroendocrine and Lymphocyte Responses and Relationships Elicited as a Result of Mental and Physical Challenge. *Medicine and Science in Sports and Exercise*. Volume 39(5): S454.
3. **Garten R.S.**, Kraemer R.R., Cho C., Chee P.D.M., Reeves, G.V., Hollander D.B., Francois M., Goldfarb A.H. (2008). Resistance Exercise Effects on Blood Protein Carbonyls and Glutathione Status. *Medicine and Science in Sports and Exercise*. Volume 40(5): S266.
4. Goldfarb A.H., **Garten R.S.**, Cho C., Chee P.D.M., Chambers L.A. (2009). Oxidative Stress, Muscle Forces/Soreness Responses To Eccentric Exercise: Fruit/Vegetable Concentrate Compared to Placebo. *Medicine and Science in Sports and Exercise*. Volume 41(5): 517.
5. Webb H.E., Campbell D.S., Jackson C.J., **Garten R.S.**, McMinn D.R., Beckman J.L., Acevedo E.O. (2010). Relationship Between Cortisol, Experience and Negative Affect In Firefighters Performing Dual-Stress Activity. *Medicine and Science in Sports and Exercise*. Volume 42(5): 587.
6. Goldfarb A.H., McKenzie M.J., **Garten R.S.**, Gomashe C. (2011). Xanthine Oxidase and IL-6 Response to Aerobic Exercise: Comparison of African-American to Caucasian Woman. *Medicine and Science in Sports and Exercise*. Volume 43(5): 434.
7. McKenzie M.J., Goldfarb A.H., **Garten R.S.**, Gomashe C. (2011). Ethnicity Responses to Aerobic Exercise in Untrained Females: Oxidative Stress Markers. *Medicine and Science in Sports and Exercise*. Volume 43(5): 434.
8. **Garten R.S.**, Goldfarb A.H., Crabb B., Gomashe C. (2011). Partial Vascular Occlusion Effect on Oxidative Stress Markers in Young Resistance Trained Individuals. *Medicine and Science in Sports and Exercise*. Volume 43(5): 381.
9. **Garten, R.S.**, H.J. Groot, M.J. Rossman, J.R. Gifford, Richardson R.S. (2013). Is Normalizing Exercise-Induced Blood Flow for Muscle Mass Necessary? *Medicine and Science in Sports and Exercise*. Volume 43(5): 381.

### **Certifications**

American Heart Association – *Advanced Cardiovascular Life Support*  
American Heart Association – *BLS for Healthcare Providers*

## **Professional Activities**

### **Reviewer**

- Journal of Sports Science and Medicine
- Journal of Applied Physiology
- American Journal of Physiology – Heart and Circulatory Physiology

### **Member**

- American College of Sports Medicine (ACSM)

## **Research Interests**

- The impact of aging, chronic disease, and exercise on oxidant-antioxidant imbalance and the resulting effects on cardiovascular and muscle function.
- The effects of acute and chronic antioxidant supplementation on cardiovascular and muscle function in aged and/or diseased individuals.
- The effects of acute and chronic exercise on cardiovascular and muscle function in aged and/or diseased individuals.