**H. Jonathan Groot, Ph.D.**

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**PROFESSIONAL EXPERIENCE**

**Assistant Professor (Lecturer)**

* 5/2018-present
* Department of Health and Kinesiology, College of Health
* University of Utah, Salt Lake City, UT

**Director, Human Performance Research Laboratory**

* 5/2016-present
* Department of Health and Kinesiology, College of Health
* University of Utah, Salt Lake City, UT

**Visiting Assistant Professor (Lecturer)**

* 5/2016-5/2018
* Department of Health and Kinesiology, College of Health
* University of Utah, Salt Lake City, UT

**Adjunct Professor**

* 8/2014-5/2016
* Department of Biology, School of Arts and Sciences
* Westminster College, Salt Lake City, UT

**Adjunct Professor**

* 8/2015-12/2015
* Nurse Anesthesiologist MS Program, School of Nursing and Health Sciences
* Westminster College, Salt Lake City, UT

**Graduate Research Assistant**

* 1/2010-12/2015
* Utah Vascular Research Laboratory
* Geriatric Research, Education, and Clinical Center
* George E. Walden Veterans Affairs Medical Center
* Salt Lake City, UT

**Wellness Coach Internship**

* 5/2010-5/2011
* Madsen Family Clinic & Huntsman Cancer Hospital
* University of Utah Hospitals and Clinics

**Instructor**

* 1/2009-12/2010
* Center for Emergency Programs
* Department of Health Promotion and Education, College of Health
* University of Utah, Salt Lake City, UT

**Teaching Assistantships**

* Graduate TA: Advanced Cardiovascular Physiology (1/2015-12/2015)
* Undergraduate TA: Human Anatomy Cadaver Laboratory (8/2008-12/2010)
* Student Teacher: US History & World Civilizations (8/2004-5/2005)

**EDUCATION**

**Doctor of Philosophy**

* Exercise & Sport Science, emphasis in vascular function (December 2015)
* University of Utah
* Advisor: Russell S. Richardson, Ph.D.
* **Dissertation Topic:** Passive Leg Movement-Induced Vasodilation: Impact of Aging in Women, Exercise Training, and Oxidative Stress

**Master of Science**

* Exercise & Sport Science (May 2011)
* University of Utah
* Advisor: Janet Shaw, Ph.D.
* **Thesis Topic:** Movement-Induced Hyperemia and Vasodilatory Reserve with Age: Insight from Changes in Perfusion Pressure and Nitric Oxide Synthase Blockade.

**Bachelor of Arts**

* Education (May 2005)
* University of Utah
* **Emphasis:** History & Exercise Science

**COURSES TAUGHT**

**University of Utah**

**KINES 3092 - Kinesiology**

* Fall 2016 - Present
* Course provided in depth examination of human movement including neuromuscular physiology, biomechanics, and regional anatomy.
* Facilitated step-by-step kinesiological analyses of human movement.

**KINES 4301/6301 - Exercise Physiology Laboratory**

* Summer 2016 - Present
* Introduced student to the process of conducting physiological experiments in vivo. Topics included metabolism, body composition, aerobic capacity, anaerobic power, skeletal muscle fiber type, flexibility, respiratory function, and cardiovascular responses to exercise.
* Instructed students on experimental design, data and statistical analysis, and scientific writing.

**KINES 4670 – Aging and Exercise**

* Fall 2020 - Present
* Course describes alterations in life expectancy, disease risk, and morbidity in aging populations across the modern era, and identifies specific physiological factors that change across the lifespan as well as research informed interventions to reduce the deleterious effects of aging.

**KINES 4387/6387 - Resistance Training in Special Populations**

* Fall 2016
* Course focused on the scientific basis of resistance training to improve physical function in special populations such as patients with diabetes, coronary heart disease, pregnant women, and the elderly.

**KINES 4466 - Applied Exercise Programming**

* Fall 2016 - Spring 2018
* Faculty liaison in charge of community outreach and participant recruitment for ACSM based health and fitness testing and exercise prescription.

**BIOL 2325 - Human Anatomy Laboratory**

* Fall 2008 - Summer 2010
* Course involved teaching human anatomy from a variety of cadavers and anatomical segments.
* Additional duties included performing dissections, leading exam review sessions, and mentoring new laboratory teaching assistants.

**HEDU 1950 - Emergency First Aid**

* Spring 2009 - Spring 2010
* Introduced students to the identification and treatment of acute illness and traumatic injury, leading to certifications in both advanced Emergency First Aid and Cardiopulmonary Resuscitation.
* Mentored and coordinated six undergraduate teaching assistants, who in turn gave instruction on the practical skills.

**HEDU 3750 - Advanced First Aid Refresher**

* Fall 2010
* Introduced students to the identification and treatment of acute illness and traumatic injury, leading to certifications in both advanced Emergency First Aid and Cardiopulmonary Resuscitation.

**HEDU 3950 - First Aid Instructor Training**

* Fall 2009 - Fall 2010
* Provided guidance and instruction to undergraduate students seeking teaching assistantships in the Center for Emergency Programs.
* Course focused on pedagogy and included instruction in verbal and nonverbal cues, increasing student engagement, utilization of classroom space, and effective time management.

**Westminster College**

**BIOL 103 - Human Anatomy and Laboratory**

* Fall 2014
* Introduced basic human anatomy from both a systems approach as well as by regions. Topics included anatomical organization and terminology, embryology, cardiovascular, respiratory, digestive, urinary, reproductive, skeletal and muscular systems.
* The lecture portion was complimented by a laboratory component in which students were instructed on proper dissection technique, and the prominent musculature and organ systems were identified and discussed.

**BIOL 104 - Human Physiology and Laboratory**

* Spring 2016
* Introduced students to basic human physiology through both lecture presentations and discussions, as well as student lead laboratory experiments.
* Topics discussed included bioenergetics and metabolism, neural physiology and special senses, cardiovascular and ventilatory control, and skeletal and muscular physiology.

**MSNA 530 - Gross Anatomy**

* Fall 2015
* Provided in depth instruction on human anatomy to master’s students in the Nurse Anesthesiology program.
* Course was a combined lecture and laboratory with specific focus on neuroanatomy, including muscular and cutaneous innervation.

**GUEST LECTURER**

**University of Utah**

**KINES 6384 - Advanced Cardiovascular Physiology**

**KINES 3091 - Exercise Physiology**

**KINES 3094 - Honors Exercise Physiology**

**KINES 2500 - Exploration of the Movement Sciences**

**BIOL 2325 - Human Anatomy Laboratory**

**BIOL 5314 - Human Anatomy Colloquium Series**

**HEDU 5950 - EMT Training**

**UGS 2300 - Work Wellness and the Great Outdoors**

**Westminster College**

**MSNA 500 - Physiology I**

**MSNA 530 - Gross Anatomy**

**SERVICE**

**College and Departmental Service**

**Student Equity, Diversity, and Inclusion Committee**

* + - I served as a faculty mentor to the student led Equity, Diversity, and Inclusion committee within the Health and Kinesiology Department.

**Undergraduate Curriculum Subcommittee**

* + - I served as the sole career-line faculty member on this committee, which was formed to redesign the undergraduate curriculum for over 1,000 Health and Kinesiology majors.

**Syllabi and Policy Committee**

* + - The task of this committee was to standardize academic policies and to create a consistent Health and Kinesiology syllabus template.

**Laboratory Committee for Health and Kinesiology**

* + - The Laboratory Committee assessed and managed resources across all Health and Kinesiology laboratory spaces for research, teaching, and community utilization.

**Exercise and Disease Junior Faculty Search Committee**

* + - Sat on two consecutive committees searching for two assistant/associate professor level tenure-line faculty (2017 and 2018).
		- Reviewed application materials, identified potential candidates, performed skype interviews, hosted applicants during on campus interviews.

**Exercise and Disease Senior Faculty Search Committee**

* + - Sat on two consecutive committees searching for one Full professor level tenure-line faculty (2017 and 2019).
		- Reviewed application materials, identified potential candidates, performed skype interviews, hosted applicants during on campus interviews.

**College of Health Teaching Café**

* + - Introduced various mentorship strategies to colleagues in the College of Health on how to improve our partnerships with undergraduate students, including my program for Kinesiology TA’s.

**Teaching Breakout Session: Health, Kinesiology, and Recreation Department**

* + - Facilitated a discussion of the qualities most commonly identified in effective college professors, as well as strategies and philosophies aimed at bolstering these qualities in the classroom.

**“Health and Human Movement” summer camp**

* + - Developed the curriculum for, and implemented the first ever College of Health summer camp for pre-college students in partnership with Youth Education. This week-long summer camp exposes high school students to various laboratories and health disciplines throughout the College. The camp first ran in the summer of 2018, and is scheduled to run again this summer of 2019.

**Student Mentorship**

**Undergraduate Research Opportunities Program**

* Mentored one premedical undergraduate student on the methods of data collection, analysis, and interpretation. The student’s project centered on the effect of acute antioxidant supplementation on vascular function with age.
* Mentored one pre-PA undergraduate student for two consecutive semesters on program adaptation, manuscript and poster preparation, and presentation skills. The student’s project sought to translate the Community Health Activities Program for Seniors (CHAMPS) into a community-based physical activity program for cancer survivors.

**Graduate Thesis Committee Member**

* Andrea Do-Duc, MS student in the Department of Nutrition and Integrative Physiology

**Undergraduate Teaching Assistants**

* Mentoring 10-12 undergraduate students each semester in exercise physiology, kinesiology, knowledge application, understanding research, and teaching skills.
* Currently, I have mentored 69 undergraduate TA’s.

**Graduate Teaching Assistants**

* Mentoring one graduate student each year in research design and development, kinesiology knowledge and application, and teaching skills.
* Currently, I have mentored 6 graduate TA’s.

**Community Engagement**

**Volunteer Presenter at Red, White, and U Day**

* This is an event designed to help students accepted to the University of Utah select a departmental major.
* 2017, 2018, 2019

**Youth Group Host**

* Host to students from local elementary, middle, and high schools visiting the University of Utah.
* The purpose of the visits are to encourage at risk youth populations to consider college after high school.
	+ Horizonte Instruction and Training Center
		- Middle School and High School programs
	+ West High School
	+ American Preparatory Academy
	+ PATHS (Promoting Access to High Schoolers) program with Youth Education

**Media Creation**

* Helped to create media for the American Preparatory Academy highlighting the exciting directions that students can take in college.

**University Service**

**Student Research Moderator**

* Utah Conference on Undergraduate Research
* University of Utah Undergraduate Research Symposium

**Block U Symposium Judge**

* Judge the Block U students’ Community Engaged Service projects

**External Service**

**Journal Reviewer**

* Journal of Physiology
* Journal of Applied Physiology
* American Journal of Physiology
* Exercise and Sports Science Reviews
* Ageing Research Reviews
* Applied Physiology, Nutrition, and Metabolism

**PROFESSIONAL ACTIVITIES AND CERTIFICATIONS**

**Higher Education Teaching Specialist**

* Center for Teaching and Learning Excellence, University of Utah

**American College of Sports Medicine (ACSM)**

* Member since 2011

**Human Anatomy and Physiology Society (HAPS)**

* Member since 2017

**American Heart Association**

* BLS for Healthcare Providers

**National Outdoor Leadership School**

* Wilderness Emergency Medical Technician

**US Olympic Committee**

* Safe Sport Certification

**HONORS AND AWARDS**

**College of Health’s Distinguished Teaching Award**

* 2020-2021 Academic Year

**Kinesiology Excellence in Teaching Award**

* 2019-2020 Academic year
* 2018-2019 Academic year
* 2017-2018 Academic year
* 2016-2017 Academic year

**University of Utah Graduate Teaching Assistantship**

* 2021-2022 Academic Year
* Title: Creation of a Graduate Training Program to Instruct the Exercise Physiology Laboratory
* $20,000 stipend for student

**AHSE Early Career Educator Award in Health Sciences (nomination)**

* 2020-2021 Academic year

**University of Utah Early Career Teaching Award (nomination)**

* 2019-2020 Academic year

**Invited Graduate Student Speaker**

* College of Health Graduate Student Convocation (2016)

**Patriotic Employer Award**

* Office of the Secretary of Defense (2019)

**U of U Graduate Research Fellowship Award**

* First Runner up 2014

**T. H. Bell Teaching Scholarship Award**

* Full tuition award for three years (1999-2002)

**Granite Credit Union Student Scholarship Award**

* $1,000 award (1999)

**RESEARCH STATEMENT**

 I am primarily interested in the impact of vascular aging on blood flow regulation in older humans, and whether physical activity can prevent the onset of cardiovascular disease in this population. Currently I am investigating a novel approach to assess vascular function (passive leg movement – PLM) that may prove to be a useful predictor of cardiovascular disease risk. In the future, I would like to expand the application of this novel assessment by exploring the PLM induced cardiovascular response in historically underrepresented populations.

**CONFERENCE PRESENTATIONS**

1. **Vascular Dysfunction with Age: Evidence from Upright and Supine Passive Limb Movement.** Groot HJ, Trinity JD, Layec G, Rossman MJ, Ives SJ, Richardson RS. *59th Annual American College of Sports Medicine Meeting & 3rd World Congress on Exercise is Medicine*, San Francisco, CA, 2012.
2. **The Role of Nitric Oxide in Movement-Induced Hyperemia with Age: Evidence from Alterations in Femoral Perfusion Pressure.** Groot HJ. *60th Annual American College of Sports Medicine Meeting & 4th World Congress on Exercise is Medicine*, Indianapolis, IN, 2013.
3. **Rapid vasodilation in response to passive leg movement with age: the role of nitric oxide and the impact of perfusion pressure.** Groot HJ, Trinity JD, Layec G, Rossman MJ, Ives SJ, Richardson RS. *Experimental Biology*, Sand Diego, CA, 2014.
4. **The Impact of Physical Activity on Vascular Aging.** Groot HJ. *29th Annual Update in Physical Medicine and Rehabilitation*, Park City, UT, 2015.
5. **Physical activity and passive leg movement-induced vasodilation: Implications for exercise and vascular aging.** Groot HJ, Rossman MJ, Garten RS, Wang E, Helgerud J, Hoff J, Richardson RS. *62nd Annual American College of Sports Medicine Meeting & 6th World Congress on Exercise is Medicine*, Sand Diego, CA, 2015.
6. **Reliability of the passive leg movement assessment of vascular function.** Groot HJ, Broxterman RM, Garten RS, Rossman MJ, Gifford JR, Kwon OS, Hydren JR, Richardson RS. *64nd Annual American College of Sports Medicine Meeting & 8th World Congress on Exercise is Medicine*, Denver, CO, 2017.

**PUBLICATIONS:** (h-index = 18, i10-index = 21, total citations = 784)

1. Trinity JD, **Groot HJ**, Layec G, Rossman MJ, Ives SJ, Runnels S, Gmelch B, Bledsoe A, Richardson RS. Nitric oxide and passive limb movement: a new approach to assess vascular function. *J Physiol* 2012 Mar 15;590(Pt 6):1413-25.
2. **Groot HJ**, Trinity JD, Layec G, Rossman MJ, Ives SJ, Richardson RS. Perfusion pressure and movement-induced hyperemia: evidence of limited vascular function and vasodilatory reserve with age. *Am J Physiol Heart Circ Physiol* 2013 Feb 15;304:H610-H619.
3. Rossman MJ, **Groot HJ**, Reese V, Zhao J, Amann M, Richardson RS. Oxidative Stress and COPD: The Effect of Oral Antioxidants on Skeletal Muscle Fatigue. *Med Sci Sports Exerc* 2013 Jul;45(7):1235-43.
4. Rossman MJ, Garten RS, **Groot HJ**, Reese V, Zhao J, Amann M, Richardson RS. Ascorbate infusion increases skeletal muscle fatigue resistance in patients with chronic obstructive pulmonary disease. *Am J Physiol Regul Integr Comp Physiol* 2013 Nov;305(10):R1163-70.
5. Layec G, Trinity JD, Hart CR, Kim SE, **Groot HJ**, Le Fur Y, Sorensen JR, Jeong EK, Richardson RS. In vivo evidence of an age-related increase in ATP cost of contraction in the plantar flexor muscles. *Clin Sci* 2013 Nov;126(8):581-92.
6. **Groot HJ**, Richardson RS. The skeletal muscle microcirculation: if this is the hippodrome for the chariots of vasoactivity, who is the charioteer? *Exp Physiol* 2014 Jan;99(1):78-79.
7. Trinity JD, **Groot HJ**, Layec G, Rossman MJ, Ives SJ, Richardson RS. Impact of age and body position on the contribution of nitric oxide to femoral artery shear rate: implications for atherosclerosis. *Hypertension* 2014 May;63:1019-1025.
8. Garten RS, **Groot HJ**, Rossman MJ, Gifford JR, Richardson RS. The Role of Muscle Mass as a Modulator of Exercise-Induced Hyperemia. *J Appl Physiol* 2014 May;116(9):1204-9.
9. Amann M, Venturelli M, Ives SJ, Morgan DE, Gmelch B, Witman MA, **Groot HJ**, Wray DW, Stehlik J, Richardson RS. Group III/IV muscle afferents impair limb blood in patients with chronic heart failure. *Int J Cardiol* 2014 Jun;174(2):368-75.
10. Witman MA, Ives SJ, Trinity JD, **Groot HJ**, Stehlik J, Richardson RS. Heart failure and movement-induced hemodynamics: partitioning the impact of central and peripheral dysfunction. *Int J Cardiol* 2014 Oct;178C:232-238.
11. Hart CR, Layec G, Trinity JD, Liu X, Kim SE, **Groot HJ**, Fur YL, Sorensen JR, Jeong EK, Richardson RS. Evidence of preserved oxidative capacity and oxygen delivery in the plantar flexor muscles with age. *J Gerontol A Biol Sci Med Sci* 2015;70(9): 1067-76.
12. Layec G, Trinity JD, Hart CR, Kim SE, **Groot HJ**, Fur YL, Sorensen JR, Jeong EK, Richardson RS. The impact of age on exercise-induced ATP supply during supra-maximal plantar flexion in humans. *Am J Physiol Regul Integr Comp Physiol* 2015;309(4): R378-88.
13. Trinity JD, **Groot HJ**, Layec G, Rossman MJ, Ives SJ, Morgan DE, Gmelch BS, Bledsoe AD, Richardson RS. Passive leg movement and nitric oxide-mediated vascular function: The impact of age. *Am J Physiol Heart Circ Physiol* 2015;308(6): H672-9.
14. **Groot HJ**, Trinity JD, Layec G, Rossman MJ, Ives SJ, Morgan DE, Bledsoe A, Richardson RS. The role of nitric oxide in passive leg movement-induced vasodilation with age: insight from alterations in femoral perfusion pressure. *J Physiol* 2015;593(17): 3917-28.
15. Witman MA, Garten RS, Gifford JR, **Groot HJ**, Trinity JD, Stehlik J, Nativi JN, Selzman CH, Drakos SG, Richardson RS. Further peripheral vascular dysfunction in heart failure patients with a continuous-flow left ventricular assist device: the role of pulsatility. *JACC. Heart Failure* 2015;3(9): 703-11.
16. **Groot HJ**, Rossman MJ, Trinity JD, Layec G, Ives SJ, Richardson RS. Passive leg movement-induced vasodilation in women: The impact of age. *Am J Physiol Heart Circ Physiol* 2015;309(5) H995-H1002.
17. Ives SJ, Amann M, Venturelli M, Witman MA, **Groot HJ**, Wray DW, Morgan DE, Richardson RS. The mechanoreflex and hemodynamic response to passive leg movement in heart failure. *Med Sci Sports Exerc* 2016 Mar;48(3):368-76.
18. Nelson AD, Rossman MJ, Witman MA, Barrett-O’Keefe Z, **Groot HJ**, Garten RS, Richardson RS. Nitric oxide-mediated vascular function in sepsis using passive leg movement as a novel assessment: a cross sectional study. *J Appl Physiol* 2016 May;120(9):991-9.
19. **Groot HJ**, Rossman MJ, Garten RS, Wang E, Hoff J, Helgerud J, Richardson RS. The effect of physical activity on passive leg movement-induced vasodilation with age. *Med Sci Sports Exerc* 2016 Aug;48(8):1548-57.
20. Rossman MJ, **Groot HJ**, Garten RS, Witman MA, Richardson RS. Vascular function assessed by passive leg movement and flow-mediated dilation: evidence of construct validity. *Am J Physiol Heart Circ Physiol* 2016 Nov;311(5) H1277-H1286.
21. Clifton HL, Machin DR, **Groot HJ**, Frech TM, Donato AJ, Richardson RS, Wray DW. Attenuated nitric oxide bioavailability in systemic sclerosis: Evidence from the novel assessment of passive leg movement. *Experimental Physiology* 2018 May;103:1412-24.
22. Barrett-O’Keefe Z, Lee JF, Ives SJ, Trinity JD, Witman MA, Rossman MJ, **Groot HJ**, Sorensen JR, Morgan DE, Nelson AD, Stehlik J, Richardson RS, Wray DW. Alpha adrenergic receptor regulation of skeletal muscle blood flow during exercise in heart failure patients with reduced ejection fraction. *Am J Physiol Regul Integr Comp Physiol* 2019 May1;316(5):R512-524.
23. Broxterman RM, Wittman MA, Trinity JD, **Groot HJ**, Rossman MJ, Park SY, Malenfant S, Gifford JR, Kwon OS, Park SH, Jarrett CL, Shields KL, Hydren JR, Bisconti AV, Owan T, Abraham A, Tandar A, Lui CY, Smith BR, Richardson RS. A strong relationship between vascular function in the coronary and brachial arteries: A clinical coming of age for the updated flow-mediated dilation test? *Hypertension* 2019 July;74(1):208-215.
24. Francisco MA, Lee JF, Barrett-O’Keefe ZB, **Groot HJ**, Ratchford SM, Bunsawat K, Alpenglow JK, Ryan JJ, Nativi JN, Richardson RS, Wray DW. Evidence of locomotor muscle microvascular dysfunction in heart failure with preserved ejection fraction. *Hypertension* 2021

**PUBLICATIONS IN REVIEW**

1. **Groot HJ**, Rossman MJ, Garten RS, Layec G, Trinity JD, Ives SJ, Richardson RS. Decreased passive leg movement-induced vasodilation with age: The impact of acute antioxidant supplementation.
2. **Groot HJ**, Broxterman RM, Garten RS, Rossman MJ, Gifford JR, Kwon OS, Hydren JR, and Richardson RS. Reliability of the passive leg movement assessment of vascular function.
3. Gifford JR, Mangum TS, Wevil JC, Nelson A, Lee JF, **Groot HJ**, Broxterman RM, Rossman MJ, Richardson RS. Effect of particulate matter air pollution on vascular function in older adults: A natural experiment.

**PUBLISHED ABSTRACTS**

1. **Groot HJ**, Trinity JD, Layec G, Rossman MJ, Ives SJ, Richardson RS. Vascular Dysfunction with Age: Evidence from Upright and Supine Passive Limb Movement. *59th Annual American College of Sports Medicine Meeting & 3rd World Congress on Exercise is Medicine*, San Francisco, CA, 2012.
2. Rossman MJ, **Groot HJ**, Reese V, Zhao J, Amann M, Richardson RS. Oxidative Stress and Chronic Obstructive Pulmonary Disease: The Impact of Oral Antioxidants on Skeletal Muscle Fatigue. (2012)
3. **Groot HJ**. The Role of Nitric Oxide in Movement-Induced Hyperemia with Age: Evidence from Alterations in Femoral Perfusion Pressure. *60th Annual American College of Sports Medicine Meeting & 4th World Congress on Exercise is Medicine*, Indianapolis, IN, 2013.
4. Garten, RS, **Groot HJ**, Rossman MJ, Gifford JR, Richardson RS. Is Normalizing Exercise-Induced Blood Flow for Muscle Mass Necessary? (2013)
5. Barrett-O’Keefe Z, Ives SJ, Trinity JD, Witman MAH, Rossman MJ, **Groot HJ**, Morgan DE, Gmelch BS, Richardson RS, Wray DW. Is Sympathetic Restraint of Skeletal Muscle Blood Flow Present During Exercise? (2013)
6. Hart CR, Layec G, Trinity JD, Liu X, Kim SE, **Groot HJ**, Jeong EK, Richardson RS. Post exercise skeletal muscle phosphocreatine recovery and reoxygenation: Implications for oxygen transport and utilization with age. (2013)
7. **Groot HJ**, Trinity JD, Layec G, Rossman MJ, Ives SJ, Richardson RS. Rapid vasodilation in response to passive leg movement with age: the role of nitric oxide and the impact of perfusion pressure. *Experimental Biology*, Sand Diego, CA, 2014.
8. Nelson AD, Rossman MJ, Barrett-O’Keefe Z, **Groot HJ**, Witman MA, Garten RS, Richardson RS. Assessing NO-mediated vascular function in sepsis with passive leg movement as a novel approach. (2014)
9. Trinity JD, **Groot HJ**, Layec G, Rossman MJ, Ives SJ, Richardson RS. Impact of age and body position on the contribution of nitric oxide to femoral artery shear rate: implications for atherosclerosis. (2014)
10. **Groot HJ**, Rossman MJ, Garten RS, Wang E, Helgerud J, Hoff J, Richardson RS. Physical activity and passive leg movement-induced vasodilation: Implications for exercise and vascular aging. *62nd Annual American College of Sports Medicine Meeting & 6th World Congress on Exercise is Medicine*, Sand Diego, CA, 2015.
11. Gifford JR, Garten RS, Mangum T, Weavil JC, Nelson A, Trinity JD, Witman MA, Layec G, Hart C,Rossman MJ, Etheredge C, **Groot** HJ, Richardson RS. Oxygen delivery limitations and muscle mitochondrial oxygen consumption at VO2max: A case of untapped potential. (2015)
12. Garten RS, **Groot HJ**, Rossman MJ, Gifford JR, and Richardson RS. Aerobic capacity augments passive limb movement-induced hyperemia. (2015)
13. Garten RS, Lee JF, **Groot HJ**, Rossman MJ, Clifton HL, Wray DW, and Richardson RS. Rescuing age-related vascular dysfunction: The impact of tetrahydrobiopterin and antioxidants. (2016)
14. Broxterman RM, **Groot HJ**, Rossman MJ, Garten RS, Venturelli M, Kwon OS, Hydren JR, Gifford JR, and Richardson RS. Within-day test-retest reliability of the single passive leg movement technique: Evidence of clinical utility. (2016)
15. Witman MA, Garten RS, Gifford JR, **Groot HJ**, Trinity JD, Stehlik J, Nativi JN, Selzman CH, Drakos SG, Richardson RS. Peripheral vascular dysfunction following left ventricular assist device implantation: Insight from passive leg movement. (2016)
16. **Groot HJ**, Broxterman RM, Garten RS, Rossman MJ, Gifford JR, Kwon OS, Hydren JR, Richardson RS. Reliability of the passive leg movement assessment of vascular function. *64th Annual American College of Sports Medicine Meeting & 8th World Congress on Exercise is Medicine*, Denver, CO, 2017.
17. Gifford JR, Mangum TS, Wevil JC, Nelson A, Lee JF, **Groot HJ**, Broxterman RM, Rossman MJ, Richardson RS. Particulate matter air pollution and vascular function in older adults: A natural experiment. (2018)