

Christopher K. Kargl, Ph.D

Postdoctoral Researcher

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Education:

- 2018 – 2022 **Purdue University**, West Lafayette, Indiana
Ph.D. in Exercise Physiology and Gerontology
Department of Health and Kinesiology
Mentor: Timothy P Gavin, Ph.D.
- 2016 – 2018 **Purdue University**, West Lafayette, Indiana
Master of Science in Exercise Physiology
Mentor: Dr. Gavin
- 2011 - 2015 **Benedictine University**, Lisle, Illinois
Bachelor of Science, Biology. *Cum Laude*

Professional Positions:

- 2022 – **University of Pittsburgh**, Pittsburgh, Pennsylvania
Position: Postdoctoral Fellow
Neuromuscular Research Lab
Mentor: Dr. Brad Nindl
- 2021 – 2022 **Purdue University**, West Lafayette, Indiana
Position: Graduate Research Assistant
- 2016 – 2021 **Purdue University**, West Lafayette, Indiana
Position: Graduate Teaching Assistant
Department of Health and Kinesiology

Peer Reviewed Publications:

1. **Kargl CK**, Arshad M, Salman F, Schurman RC, Del Corral P. 11 β -hydroxysteroid dehydrogenase type-II activity is affected by grapefruit juice and intense muscular work. Arch Endocrinol Metab. 2017.
2. Nie Y, Sato Y, Garner RT, **Kargl CK**, Wang C, Kuang S, Gilpin CJ, Gavin TP. Skeletal muscle derived exosomes regulate endothelial cell functions via reactive oxygen species activated NF- κ B signaling. Experimental Physiology. 2019.
3. **Kargl CK**, Nie Y, Evans S, Stout J, Shannahan JH, Kuang S, Gavin TP. Factors secreted from high glucose treated endothelial cells impair expansion and differentiation of human skeletal muscle satellite cells. Journal of Physiology. 2019. **Editor's choice.**
4. **Kargl CK**, Sullivan BP, Gavin TP. *Editorial*: Massage during muscle unloading increases protein turnover in the massaged and non-massaged, contralateral limb, but does not attenuate muscle atrophy. Acta Physiologica. May 2020.

5. **Kargl CK***, Kim K*, Bohyun R, Song Q, Gavin TP, Roseguini BT. Impact of heat and compression therapy on the response to high intensity exercise in trained individuals. *Medicine & Science in Sports & Exercise*. June 2021 *Equal contribution*
6. **Kargl CK***, Hettinger ZR*, Nie Y, Evans S, Stout J, Shannahan JH, Kuang S, Gavin TP. Exosomes secreted from senescent human muscle satellite cells induce endothelial cell senescence. *Experimental Physiology*. August 2021. *Equal contribution*. **Cover Article. Editor's choice.**
7. Sullivan BP, Nie Y, Evans S, **Kargl CK**, Hettinger ZR, Hubal MJ, Kuang S, Stout J, Gavin TP. Effect of Short-Term Concurrent Exercise Training on Skeletal Muscle Exosomal miRNA Content in Lean and Obese Humans. *Experimental Physiology*. February 2022.
8. Garner RT, Weiss JA, Nie Y, Sullivan BP, **Kargl CK**, Drohan CJ, Kuang S, Stout J, Gavin TP. Effects of obesity and acute resistance exercise on skeletal muscle angiogenic communication pathway. *Experimental Physiology*. May 2022
9. Monroe JC, Pae BJ, **Kargl CK**, Gavin TP, Parker J, Perkins SM, Han Y, Klein J, Motaganahalli RL, Roseguini BT. Effects of home-based leg heat therapy on walking performance in patients with symptomatic peripheral artery disease: a pilot randomized trial. *Journal of Applied Physiology*. June 2022.
10. **Kargl CK**, Middleton D, York A, Sullivan BP, Brault J, Gavin TP. PGC-1 α overexpression improves contents and angiogenic potential of myotube extracellular vesicles. *Experimental Physiology*. November 2022.
11. **Kargl CK**, Jia Z, Shera DA, Sullivan BP, Burton LC, Nie Y, Hubal MJ, Shannahan JH, Kuang S, Gavin TP. Angiogenic potential of skeletal muscle derived extracellular vesicles differs between oxidative and glycolytic muscle tissue. (**Accepted; Acta Physiologica**)

Manuscripts Under Review/In preparation

1. Ross M, Hellsten Y, Gavin TP, **Kargl CK**, Murphy R, Ferguson R, Cocks MS, Muggeridge D. Untitled Exercise-induced Angiogenesis Review. *European Journal of Applied Physiology*. (**Under Review**)
2. Belbis MD, Holmes MJ, **Kargl CK**, Gavin TP, Hirai DM. Untitled Article on the impact of COX-2 inhibitors on skeletal muscle microvascular reactivity. (**In preparation**)
3. Baumgartner NW, Belbis MD, Holmes MJ, **Kargl CK**, Gavin TP, Kao SC. Untitled article on brain function and BDNF levels following exercise. (**In preparation**)

Scientific Abstracts:

1. Arshad M, Ocampo A, **Kargl CK**, Coughlin C, Foote D, Schurman RC, Nadolski JB, Del Corral P. The Effect of 5-Hydroxytryptophan and Intense Exercise on Plasma Cortisol and Corticosterone. Midwest American College of Sports Medicine Annual Meeting, November 2014.
2. **Kargl CK**, Nie Y, Garner RT, Evans S, Hettinger ZR, Sullivan B, Gavin TP. Effects of Obese Skeletal Muscle Cells on Endothelial Cell Angiogenesis. American College of Sports Medicine National Meeting, May 2018.
3. Hettinger ZR, Nie Y, Garner RT, **Kargl CK**, Patel SH, Kuang S, Gavin TP. Serial Passaging Reduces Proliferation and Fusion Capacity of Primary Human Skeletal Muscle Satellite Cells. American College of Sports Medicine National Meeting, May 2018.
4. **Kargl CK**, Nie Y, Evans S, Gavin TP. High Glucose Treated Endothelial Cells Impair Human Skeletal Muscle Stem Cell Expansion. Center on Aging and the Life Course Symposium, September 2018.
5. **Kargl CK**, Nie Y, Evans S, Gavin TP. Factors Secreted from High Glucose Treated Endothelial Cells Impair Human Skeletal Muscle Stem Cell Differentiation. Purdue Health and Human Sciences Research Day, October 2018.

6. **Kargl CK**, Hettinger ZR, Kuang S, Gavin TP. Exosomes from Human Skeletal Muscle Satellite Cells Induce Senescence in Endothelial Cells. Purdue Health and Disease Research Day, February 2019.
7. Hettinger ZR, **Kargl CK**, Kuang S, Gavin TP. Senescent Satellite Cells Increase Extracellular Vesicle Production, Secretion. Muscle Biology Conference, March 2019.
8. **Kargl CK**, Hettinger ZR, Kuang S, Gavin TP. Senescent Skeletal Muscle Satellite Cell Exosomes Induce Endothelial Cell Senescence and Impair Angiogenesis. CK Kargl, ZR Hettinger, S Kuang, TP Gavin. American College of Sports Medicine National Meeting, May 2019.
9. **Kargl CK**, Yang AL, Jia Z, Kuang S, Shannahan JH, Gavin TP. Skeletal Muscle Extracellular Vesicles Regulate Endothelial Cells in a Fiber Type Dependent Manner. Experimental Biology, April 2021.
10. Sullivan BP, Ellis AL, **Kargl CK**, Kuang S, Gavin TP. Effect of PGC1- α Overexpression on Cardiotoxin-Induced Damage and Repair of Human Myotubes. Experimental Biology, April 2021.
11. Shera D, **Kargl CK**, Yang AL, Jia Z, Kuang S, Shannahan JH, Gavin TP. Skeletal Muscle Extracellular Vesicle Regulation of Angiogenesis is Dependent on Fiber Type. MWACSM, November 2021.
12. **Kargl CK**, Shera D, Sullivan BP, Jia Z, Hubal M, Kuang S, Gavin TP. Skeletal muscle extracellular vesicle contents and angiogenic signaling differ between oxidative and glycolytic muscle. National ACSM, May 2022.
13. Burton LC, **Kargl CK**, Gavin TP. Differences in Regulatory Genes Involved in Myoblast Growth and Differentiation Into Myotubes in Type 2 Diabetic Human Muscle. National ACSM, May 2022.
14. **Kargl CK**, Sullivan BP, Middleton DM, York A, Burton L, Brault JJ, Kuang S, Gavin TP. PGC-1 α Overexpression Improves Angiogenic Signaling Potential of Skeletal Muscle-derived Extracellular Vesicles. Mid-Atlantic ACSM, November 2022.
15. Campbell NW, Cottingham H, **Kargl CK**, Carroll CC. Treatment of healthy tendon-derived cells with serum from rats with streptozotocin-induced diabetes impairs cell proliferation, migration, and metabolic activity. Orthopedic Research Society Annual Meeting, February 2023.

Presentations:

1. The Effect of Grapefruit Juice and Intense Exercise on Plasma Cortisol. Midwest American College of Sports Medicine Annual Meeting, November 2014. ***Best Undergraduate Oral Presentation***
2. VasoMyo Cross-talk: Skeletal Muscle-Capillary Communication in Health and Dysfunction. Purdue Health and Kinesiology Colloquia. November 2019.
3. Healthy Aging: The Muscle-Capillary Connection. Ismail Center Health Education Series. April 2021
4. Skeletal Muscle Crosstalk via Extracellular Vesicles. Professional Talk. Midwest College of Sports Medicine Annual Meeting, November 2021.
5. Skeletal muscle extracellular vesicle regulation of endothelial cells is muscle fiber type dependent. 3rd Annual Nitric Oxide Research Interest Group Meeting. February 2022.
6. Research talk on aging and skeletal muscle extracellular vesicles at the Purdue University Center for Aging and the Life Course Scholars in the Spotlight event. Invited. April 2022
7. Skeletal muscle extracellular vesicle regulation of capillaries differs between oxidative and glycolytic muscle. American College of Sports Medicine National Meeting. June 2022

8. PGC-1 α Overexpression Improves Angiogenic Signaling Potential of Skeletal Muscle-derived Extracellular Vesicles. Mid-Atlantic ACSM, November 2022.

Grants/Fellowships:

2018	Purdue Graduate Student Government Travel Grant (\$750)
2019	American Heart Association Pre-Doctoral Fellowship (<u>Submitted; Not Funded</u>)
2019	ACSM Foundation Doctoral Student Research Grant (<u>Submitted; Not Funded</u>)
2019	Health and Kinesiology Templin Graduate Student Travel Award (\$500)
2019	College of Health and Human Sciences Compton Graduate Student Training Development Award (\$500)
2020	Purdue Graduate School Summer Research Fellowship
2021	ACSM Foundation Doctoral Student Research Grant (<u>Submitted; Not Funded</u>)
2021	Purdue University College of Health and Human Sciences Bilsland Research Fellowship (<u>Awarded: 1 year research fellowship</u>)

Awards/Honors:

2014	Undergraduate Oral Presentation- First Place (\$150) “The Effect of Grapefruit Juice and Intense Exercise on Plasma Cortisol” Midwest ACSM Annual Meeting, November 2014
2019	A.A. Annarino Health and Kinesiology Department Graduate Student Teaching Award
2019	Purdue University Teaching Academy Graduate Teaching Award- Health and Kinesiology Department Representative
2021	American Physiological Society: Research Recognition Award in Endocrinology & Metabolism for 2021 Experimental Biology Abstract.
2021	American Physiological Society: Research Recognition Award in Cell and Molecular Physiology. <u>Finalist; Not awarded due to RR award in Endocrinology</u>
2021	American Physiological Society Robert Gunn Award in Cell and Molecular Physiology. <u>Finalist</u>
2022	Health and Kinesiology Outstanding Scholar Award (\$200)
2022	AKA Doctoral Scholar Award recipient
2022	AKA Doctoral Writing Award recipient

Research Experience and Skills:

Laboratory and Research Skills:

2D and 3D Cell Culture and related assays/techniques – Quantitative RT-PCR – Immunoblotting – Immunostaining – Extracellular vesicle isolation and characterization – Flow Cytometry – Viral transfection – Oroboros O2k – VO₂ max and exercise testing in human subjects –RNA sequencing analysis via Ingenuity Pathway Analysis – Assistance with human muscle biopsies

Formal Training/Workshops:

February 2017	Cell Culture Basics (2-day workshop) Purdue University 3D Cell Culture Core
May 2017	3D Cell Culture Basics (2-day workshop) Purdue University 3D Cell Culture Core
June 2017	Analysis and Visualization of 3D Cultures (2-day workshop) Purdue University 3D Cell Culture Core
August 2020	Spectral Microscopy (1-day training)
Summer 2021	Oroboros O2k training (multi-day training)
August 2021	RNA sequencing analysis using Ingenuity Pathway Analysis software Dr. Monica Hubal, IUPUI

Undergraduate mentorship:

2017	Ben Thornton, Adam Zike
2018-2019	Braden Beyer
2019	Gabriel Jones, Ivan Bobadilla, Mariah Ellwood
2019-2020	Logan Barber
2020-2021	Autumn Yang, Harrison Cottingham
2021- 2022	Deborah Shera, Allison Ellis, Josh Middleton, Victoria Harrison

Teaching Experience:

2016 – 2019; 2022	Exercise Physiology Lab – Teaching Assistant Purdue University
2017	Lifetime Fitness and Wellness – Teaching Assistant

Purdue University

2018 Lifetime Fitness and Wellness – Course Supervisor
Purdue University

2018 – 2021 Health Screening, Fitness Evaluation and Design

Professional Memberships:

2014 – Present American College of Sports Medicine

2019 – 2021 American Heart Association

2020 – Present American Physiological Society

Certifications:

2016 – 2021 CPR Certified

2015 – 2016 Dementia Capable Care Certified

2014 – 2018 Certified Nursing Assistant