

Matthew Kilgas, M.S.

Michigan Technological University
Department of Kinesiology and Integrative Physiology
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EDUCATION

Ph.D.	Integrative Physiology (Expected 2018)	Michigan Technological University
M.S.	Exercise Science (2015)	Northern Michigan University
B.S.	Biomedical Engineering (2013)	Michigan Technological University

PROFESSIONAL POSITIONS

Michigan Technological University (Houghton, MI)

2015-present	Graduate Student Research Assistant, Dept. of Kinesiology & Integrative Physiology
2015-present	Instructor, Dept. of Kinesiology & Integrative Physiology
2015-present	Teaching Assistant, Dept. of Kinesiology & Integrative Physiology

Northern Michigan University (Marquette, MI)

2013-2015	Teaching Assistant, School of Health and Human Performance
2013-2015	Instructor, School of Health and Human Performance

RESEARCH INTERESTS

My research goals are to find better ways to restore musculoskeletal function, maintain health, and improve performance in healthy and clinical populations. Specially, adapting novel exercise programs (blood flow restricted exercise, eccentric-based exercise, etc.) to overcome the barriers associated with traditional exercise training. Applications for my research range from using eccentric exercise to improve wheelchair mobility in those with spinal cord injury to using blood flow restricted exercise to recover quadriceps strength following ACL reconstruction.

PEER-REVIEWED JOURNAL PUBLICATIONS (5 Total)

Joubert, LM, **Kilgas, MA**, Riley, A, Gautam, Y, Donath, L, Drum, SN: (2017) "In-class Cycling to Augment College Student Academic Performance and Reduce Physical Inactivity: Results from a RCT," *International Journal of Environmental Research and Public Health*, 14(11), 1343

Elmer, SJ, Wakeham, T, **Kilgas, MA**, Anderson, DJ, Durocher, JJ, LaStayo, PC: (2017) "Chronic Eccentric Arm Cycling Improves Maximum Upper-body Strength and Power," *European Journal of Applied Physiology*, 117(7), pg. 1473-1483.

Kilgas MA, Elmer, SJ: (2017) "Back to the Future! Revisiting the Physiological Cost of Negative Work as a Team-Based Activity for Exercise Physiology Students," *Advances in Physiology Education*, 41(1), pg. 120-129. *Feature on Journal Cover (Dec. 2017)

Kilgas, MA, Drum, SN, Jensen, RL, Phillips, KC, Watts, PB: (2016) “The Effect of Magnesium Carbonate (Chalk) on Geometric Entropy, Force and EMG during Rock Climbing,” *Journal of Applied Biomechanics*, 32(6), pg. 553-557.

Watts, PB, Drum, SN, **Kilgas, MA**, Phillips, KC: (2016) “Geometric Entropy for Lead vs Top-Rope Rock Climbing,” *International Journal of Exercise Science*, 9(2), pg. 168-174.

MANUSCRIPTS SUBMITTED OR IN PREPARATION

Kilgas, MA, McDaniel, J, Straves, Pollock, BS, Singer, T, Elmer, SJ: “Limb Blood Flow and Tissue Perfusion during Exercise with Blood Flow Restriction,” (In preparation)

FUNDED GRANTS (3 grants funded \$9,500 Total)

CURRENT

2016: **Kilgas, MA**, Elmer, SJ: “Muscle Function Following Aerobic Exercise with Blood Flow Restriction: Implications for Spaceflight.” Michigan Space Grant Consortium Graduate Fellowship Program. (\$5,000). **Role: Principle Investigator**

2016-2017: Elmer SJ: “RENEW-U! A New Exercise for Individuals with Spinal Cord Injury.” American College of Sports Medicine (ACSM) Research Endowment Grant. (\$10,000). **Role: Graduate Research Assistant.**

2016-2017: **Kilgas MA**: “Restoring Quadriceps Function Following ACL Reconstruction with Blood Flow Restricted Exercise.” Blue Cross Blue Shield of Michigan Student Award Program. (\$3,000). **Role: Principle Investigator.**

2016-2017: Elmer SJ: “A New Assistive Device for Wheelchair Users.” National Science Foundation I-Corps Program. (\$50,000). **Role: Graduate Research Assistant.**

COMPLETED

2015-2016: Elmer SJ: “New Exercise Equipment for Wheelchair Users.” Michigan Technological University ICorps Site Workshop Series. (\$1,500). **Role: Graduate Research Assistant.**

2014-2015: **Kilgas MA**: “Transitioning From Road Running to Trail Running.” Graduate Research and Scholarly Activities Award. (\$1,500). **Role: Principle Investigator.**

2013-2014: Drum SN: “Feasibility of Using a Cycle Desk During a Semester-Long University Lecture Course” College of Health Science and Professional Studies Faculty Grant. (\$5,000). **Role: Graduate Research Assistant.**

2013-2014: Watts PB: “Geometric Entropy for Lead vs Top-Rope Rock Climbing” College of Health Science and Professional Studies Faculty Grant. (\$5,000). **Role: Graduate Research Assistant.**

CONFERENCE PRESENTATIONS (POSTER AND ORAL)

VanSumeren, AL, **Kilgas, MA**, Bye, TK, Anderson, DA, Elmer, SJ: “Muscular Contributions to Upper-Body Exercise,” *Poster Presentation American College of Sports Medicine Conference.* (Denver, CO 2017).

Kilgas, MA, Drum, SN, Jensen, RL, Phillips, KC, Watts, PB: “The Effect of Magnesium Carbonate (Chalk) on Geometric Entropy, Force and EMG during Rock Climbing,” *Oral Presentation International Rock Climbing Research Congress* (Telluride, CO 2016)

Elmer, SJ, Anderson, DJ, Vanlandschoot, RJ, Lytle, LL, Dannenbring, JL, **Kilgas, MA**: “Upper-Extremity Eccentric Exercise: Increases in Muscle Strength and Power While Training at Moderate Intensities,” *Poster Presentation American College of Sports Medicine Conference*. (Boston, MA 2016).

Kilgas, MA, Elmer, SJ: “Revisiting the Physiological Cost of Negative Work: A Team-based Activity for Undergraduate Exercise Physiology Students,” *Oral Presentation Michigan American College of Sports Medicine Conference* (Gaylord, MI 2016).

Kilgas, MA, Drum, SN, Jensen, RL: “Transitioning from Road Running to Trail Running,” *Poster presentation International Society for Biomechanics Sport*. (Poitiers, France 2015).

Joubert, L., **Kilgas, M.**, Holley, A., Drum, S: “Feasibility of Using a Cycle Desk during a Semester-Long University Lecture course,” *Poster Presentation National American College of Sports Medicine Conference*. (San Diego, CA 2015).

Kilgas, MA, Holley, A, Joubert, L, Drum, SN: “Low intensity cycling throughout a semester-long lecture course does not interfere with student test performance,” *Poster Presentation Midwest American College of Sports Medicine Conference*. (Merrillville, IN 2014).

Holley, A, **Kilgas, MA**, Joubert, L, Drum, SN: “Student perceptions of using a cycle desk during a semester-long university lecture course,” *Poster Presentation Midwest American College of Sports Medicine Conference*. (Merrillville, IN 2014).

Kilgas, MA, Phillips, KC, Drum, SN, Watts, PB: “Static stretching does not impair sport specific measures of upper-limb force and power in rock climbing,” *Oral Presentation International Rock Climbing Research Congress*. (Pontresina, Switzerland 2014)

TEACHING EXPERIENCE

Michigan Technological University:

2016-2017	EH 3100 - Exercise Assessment and Prescription-Laboratory
2016	EH 3700 - Lifetime Fitness
2015-2016	EH 4210 - Exercise Physiology-Laboratory
2015	PE 0104 - Ultimate Frisbee

Northern Michigan University:

2013-2014	HP 200 - Physical Health and Wellbeing
2013-2015	ES 315 - Exercise Physiology-Laboratory
2013-2014	HP 216 - Beginning Weight Training and Conditioning
2013-2015	HP 258 - Beginning Rock Climbing
2014-2015	HP 252 - Hiking

TEACHING DEVELOPMENT

Graduate STEM Education Certificate (courses taken)

ED 5860 - STEM Education Practicum
ED 5700 - Introduction to Education Research
ED 5110 - Psychological Foundations of Education
ED 4720 - Methods of Teaching Science
ED 5100 - College Teaching

Educational Research

Kilgas MA, Elmer, SJ: (2017) “Back to the Future! Revisiting the Physiological Cost of Negative Work as a Team-Based Activity for Exercise Physiology Students,” *Advances in Physiology Education*, 41(1), pg. 120-129.

Joubert, LM, **Kilgas, MA**, Riley, A, Gautam, Y, Donath, L, Drum, SN: “In-class Cycling to Augment College Student Academic Performance and Reduce Physical Inactivity: Results from a RCT,” *International Journal of Environmental Research and Public Health*, (In review)

Guest Lectures

2017 EXPH 45080 - Physiology of Exercise - Kent State University
2017 ED 3100 - Exercise Assessment and Prescription - Michigan Technological University
2017 EH 3700 – Lifetime Fitness - Michigan Technological University

Teaching Workshops

2016 Student Perceptions of Tech Teaching
2016 Shock and Awe Pedagogy
2016 Too Much Content, Not Enough Thinking, and Too Little Fun

PROFESSIONAL MEMBERSHIPS

American Physiological Society
American College of Sports Medicine
American College of Sports Medicine-Midwest Chapter

HONORS/AWARDS

2017 Best Poster Presentation, Graduate Student Research Colloquium, Michigan Technological University
2016 Most attended presentation, Graduate Student Research Colloquium, Michigan Technological University
2015 Outstanding Graduating Graduate Student, Northern Michigan University, School of Health and Human Performance

DEPARTMENT SERVICES

Michigan Technological University

2016 Portage Health Foundation Banquet - Demonstration leader
2015-2016 Introductory to Kinesiology and Integrative Physiology - Lab tour guide
2016 Kinesiology and Integrative Physiology – Demonstration leader

Northern Michigan University

2015 Lab Manager
2015 Exercise is Medicine Symposium – Organizer/speaker