Ted G. Graber
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East Carolina University
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05/29/25

PERSONAL STATEMENT:

After successfully running my own construction contracting business, a life changing event caused me to shift gears and pursue a career in biomedical research. The effects of a car accident left me out of work for 6 months and I underwent extensive therapy on the road to full recovery. The science behind the treatments intrigued me, and even after returning to work, my newfound interest in physical medicine and human physiology led me to ponder a career change. I decided to return to college with the initial intention of becoming a clinician, inspired by the physiatrist who helped me during my rehabilitation. I quickly became enamored with performing and interpreting experiments in my undergraduate science courses; and sought out a position in a research lab studying the effect of ischemic stroke on the peripheral neuromuscular system in a rat model. While in a Biology of Aging course, a sarcopenia lecture catalyzed a shift in my educational focus towards a research PhD.

After completing a dual major BS degree in biology and physiology, I earned my PhD researching aging skeletal muscle physiology/biology using rodent models of sarcopenia, frailty, and exercise. I then completed a postdoc in aging muscle metabolism/physiology, working on a multitude of projects ranging from large team science clinical trials to generating transgenic mouse models. I am now a tenure track assistant professor of physical therapy at East Carolina University. Currently, my lab's research focuses on uncovering mechanisms of age-associated neuromuscular decline using mouse models of exercise and aging, omics technology (Next Generation Sequencing RNAseq and tandem mass spectrometry), and our novel composite scoring system, the comprehensive functional assessment battery (CFAB). We are particularly interested in the mechanisms responsible for differential functional aging, i.e., why some individuals age at different rates. We have recently moved into studying the effect of exercise on cognition during aging. My career goal is to impactfully improve human healthspan by mitigating disease through basic, applied, translational and reverse translational biomedical research as the tenured principal investigator of an externally funded lab specializing in aging skeletal muscle physiology/biology, in the context of sarcopenia/frailty, exercise, and rehabilitation.

EDUCATION:

04/15-05/19	Postdoctoral Didactic Continuing Education Graduate School Certificates (10 graduate credits) University of Texas Medical Branch Graduate School Division of Rehabilitation Science, Department of Nutrition and Metabolism Apr 2018: Advanced Academic Management Skills Apr 2017: Translational Research Team Management Apr 2016: Advanced Biomedical Research Strategies
Aug 2009-Mar 2015	PhD, University of Minnesota-Twin Cities Medical School Department of Physical Medicine and Rehabilitation Program in Rehabilitation Science (Muscle Biology Track); Gerontology minor Advisor: LaDora V. Thompson, PhD Dissertation: "Investigation into Sarcopenia in a Murine Model: Symptoms of Age-Related Neuromuscular Decline and Resistance Training Intervention"

May 2009 BS, University of Minnesota-Twin Cities
College of Biological Sciences
Biology, Physiology (double major)

PROFESSIONAL EXPERIENCE:

ACADEMIC APPOINTMENTS

06/19-Present Assistant Professor (Primary Appointment)
East Carolina University
College of Allied Health Sciences
Department of Physical Therapy
Greenville, NC 27834

09/20-Present Assistant Professor (Adjunct Appointment)
East Carolina University
Brody School of Medicine
Department of Physiology
Greenville, NC 27834

08/20-Present Assistant Professor (Adjunct Appointment)
East Carolina University
College of Health and Human Performance
Department of Kinesiology
Greenville, NC 27834

09/19-Present Assistant Professor Affiliate Faculty
East Carolina University
East Carolina Diabetes and Obesity Institute
Greenville, NC 27834

04/15-05/19 Postdoctoral Research Fellow in Muscle Metabolism
University of Texas Medical Branch
School of Health Professions, Division of Rehabilitation Science
Department of Nutrition and Metabolism
Galveston, Texas 77555

OTHER WORK EXPERIENCE

Prior to 2009 Owner, Graber Associates LLC (construction contracting)

Business experience pertinent to lab management: human resources, budgeting, accounting, bidding, contract law, regulatory agency compliance, marketing, advertising, sales, and management technique (augmented by business coursework in management and marketing).

PUBLICATIONS and RESEARCH DISSEMINATION

NCBI Bibliography: https://www.ncbi.nlm.nih.gov/myncbi/ted.graber.2/bibliography/public/
From Google Scholar:

As of 05/29/2025	All	Since 2020
Citations	804	554
h-index	12	
i10-index	13	

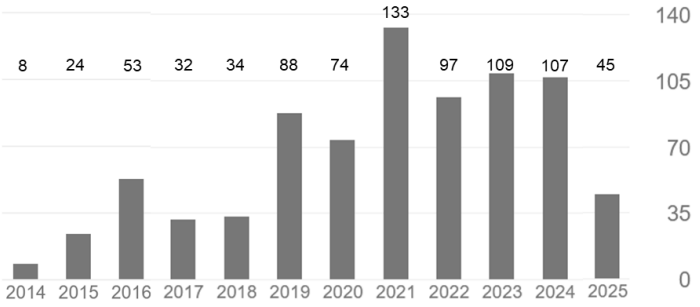

Figure 1 Citations to date: 05/14/2025

RESEARCH ARTICLES IN PEER-REVIEWED JOURNALS

(*****=equal contribution with primary author credit; [#] = corresponding/senior author, *students in italics)*

1. 2025 Pajski ML, Maroto R, *Byrd C*, **Graber TG**[#]. Longitudinal Decline of Exercise Capacity in Male and Female Mice. J Gerontol A Biol Sci Med Sci. 2025 Feb 10;80(3):glae293. doi: https://doi.org/10.1093/gerona/glae293. Epub ahead of print 2024 Dec 18th. PMID: 39693388. PMCID: PMC11809237 Citations:1

2. 2024 Pajski ML, *Byrd C, Nandigama N, Seguin E, Seguin A, Fennell A*, **Graber TG**[#]. Endurance exercise preserves physical function in adult and older male C57BL/6 mice: high intensity interval training (HIIT) versus voluntary wheel running (VWR). Front Aging. 2024 Mar 7;5:1356954. doi: https://doi.org/10.3389/fragi.2024.1356954. PMID: 38523671; PMCID: PMC10958787 Citations:5

3. 2023 Maroto R, **Graber TG**, Romsdahl TB, Kudlicki A, Russell WK, Rasmussen BB[#]. Metabolomic and Lipidomic Signature of Skeletal Muscle with Constitutively Active mTORC1. J Nutr. 2023 Oct 26:S0022-3166(23)72670-9. doi: https://doi.org/10.1016/j.tjnut.2023.10.016 Epub ahead of print. PMID: 37898335 PMCID: PMC10739780 (available on 2024-10-28) Citations:3

4. 2023 **Graber TG**[#], Maroto R, Thompson J, Widen S, Man Z, Pajski ML, Rasmussen BB. Skeletal Muscle Transcriptome Alterations Related to Physical Function Decline in Older Mice. J. Ageing Longev. 2023;3(2):159-178. doi: https://doi.org/10.3390/jal3020013 PMID: 37876943 PMCID: PMC10597580 Citations:9

5. 2021 **Graber TG**[#]**,** Maroto R, Fry CS, *Brightwell CR*, Rasmussen BB**.** Measuring Exercise Capacity and Physical Function in Adult and Older Mice [published online ahead of print, 2020 Aug 21]. J Gerontol A Biol Sci Med Sci. 2021 Apr 30;76(5):819-824. doi: https://doi.org/10.1093/gerona/glaa205 PMID: 32822475; PMCID: PMC8087272 Citations:48

6. 2021 **Brightwell CR**, **Graber TG**, *Brightwell B*, Borkowski M, Noehren B, Fry CS[#]. In vivo Measurement of Knee Extensor Muscle Function in Mice. J. Vis. Exp. 2021;169:e62211. doi: https://doi.org/10.3791/62211 PMID: 33749677 PMCID: PMC8095664 Citations:12

7. 2019a **Graber TG**, *Fandrey K*, Thompson LV[#]. Novel individualized power training protocol preserves physical function in adult and older mice. *Geroscience.* 2019;41(2):165-183. doi: https://doi.org/10.1007/s11357-019-00069-z PMID:31076998 PMCID:PMC6544743 Citations:28

8. 2019 Kim J-H, **Graber TG**, *Liu H*, Asakura A, Thompson LV[#]. Increasing MLC3f Protects Against a Decline in Contractile Velocity. *PLoS One*. 2019;14(4):e0214982. doi: https://doi.org/10.1371/journal.pone.0214982 eCollection 2019. PMID: 30964931 PMCID: PMC6456215 Citations:1

9. 2019 *Neelakantan H**, *Brightwell CR**, **Graber TG**, Maroto R, Wang H-Y L, McHardy SF, Papaconstantinou J, Fry CS[#], Watowich SJ[#]. Small molecule nicotinamide N-methyltransferase inhibitors activate senescent muscle stem cells and improve regenerative capacity of aged skeletal muscle. *Biochem Pharmacol*. 2019 May;163:481-492. doi: https://doi.org/10.1016/j.bcp.2019.02.008 PMID: 30753815 PMCID: PMC6469996 Citations:77

10. 2019b **Graber TG**, Fry CS, *Brightwell CR*, Moro T, Maroto R, *Bhattarai N*, Porter C, Wakamiya M, Rasmussen BB[#]. Skeletal Muscle Specific Knockout of DEP domain-containing 5 Increases TORC1 Signaling, Muscle Cell Hypertrophy, and Mitochondrial Respiration. *J Biol Chem*. 2019;15;294(11):4091-4102. doi: https://doi.org/10.1074/jbc.RA118.005970. PMID: 30635399 PMCID: PMC6422100 Citations:30

11. 2018 Moro T, *Brightwell CR*, Deer RR, **Graber TG**, Galvan E, Fry CS, Volpi E, Rasmussen BB[#]. Muscle Protein Anabolic Resistance to Essential Amino Acids Does Not Occur in Healthy Older Adults Before or After Resistance Exercise Training. *J Nutr*. 2018 Jun 1;148(6):900-909. doi: https://doi.org/10.1093/jn/nxy064 PMID: 29796648 PMCID: PMC6251608 Citations:77

12. 2018 **Graber TG**, *Rawls BL*, Tian B, Durham WJ, *Brightwell CR*, Brasier AR, Rasmussen BB, Fry CS[#]. Repetitive TLR-3-mediated Lung Damage Induces Skeletal Muscle Adaptations and Cachexia. *Exp. Gerontol*. 2018 Feb 13. pii: S0531-5565(17)30667-8. doi: https://doi.org/10.1016/j.exger.2018.02.002 PMID: 29452288 PMCID: PMC5911410 Citations:20

13. 2017 **Graber TG**, *Borack MS, Reidy PT*, Volpi E, Rasmussen BB[#]. Essential amino acid ingestion alters expression of genes associated with amino acid sensing, transport, and mTORC1 regulation in human skeletal muscle. *Nutr Metab* (Lond). 2017;May 11;14:35. doi: https://doi.org/10.1186/s12986-017-0187-1 PMID: 28503190 PMCID: PMC5426042 Citations:35

14. 2015a **Graber TG**, Kim J-H, McLoon LK, Grange RW, Thompson LV[#]**.** C57BL/6 Lifespan Study: Age-Related Declines in Muscle Power Production and Contractile Velocity. *Age*. 2015;37:36-. doi: https://doi.org/10.1007/s11357-015-9773-1 PMID: 25893911 PMCID: PMC4401475 Citations:90

15. 2015b **Graber TG***, Ferguson-Stegall L*****, *Liu H*, Thompson LV[#]**.** Voluntary Aerobic Exercise Reverses Frailty in Old Mice. J Gerontol A Biol Sci Med Sci*.* 2015;70(9):1045-1058. doi: https://doi.org/10.1093/gerona/glu163 PMID: 25271307 PMCID: PMC4553716 Citations:75

16. 2014 Chen, CJ, **Graber TG**, Bratten WM, Ferrington DA, Thompson, LV[#]**.** Immunoproteasome in Animal Models of Duchenne Muscular Dystrophy. *Journal of Muscle Research and Cell Motility.* 2014;35(2):191-201. doi: https://doi.org/10.1007/s10974-014-9385-x PMID: 24934129 PMCID: PMC4130177 Citations:26

17. 2014 *Liu H**, **Graber TG***, Ferguson-Stegall L, Thompson LV[#]. Clinically Relevant Frailty Index for Mice. J Gerontol A Biol Sci Med Sci. 2014;69(12):1485-1491. doi: https://doi.org/10.1093/gerona/glt188 PMID: 24336799 PMCID: PMC4271019 Citations:159

18. 2013 **Graber TG**, Ferguson-Stegall L, Kim J-H, Thompson LV[#]**.** C57BL/6 Neuromuscular Healthspan Scoring System. J Gerontol A Biol Sci Med Sci. 2013;68(11):1326-1336. doi: https://doi.org/10.1093/gerona/glt032 PMID: 23585418 PMCID: PMC3805297 Citations:99

REVIEW ARTICLES, BOOK CHAPTERS, DISSERTATION

19. 2019c **Graber TG**, Rasmussen BB. Nutrient Sensing and mTORC1 Regulation in Sarcopenia. In: Meynial-Denis D, ed. Sarcopenia: Molecular, Cellular, and Nutritional Aspects – Applications to Humans. 1st ed. Boca Raton, FL: CRC Press; 2019;Chapter 5:73-86. https://doi.org/10.1201/9780429155260 (Book Chapter) Citations:6

20. 2015c **Graber TG**. (2015c). Investigation of Sarcopenia in a Murine Model: Symptoms of Age-Related Neuromuscular Decline and Resistance Training Intervention. Retrieved via WWW from the University of Minnesota Digital Conservancy at http://hdl.handle.net/11299/188830. (Dissertation)

ARTICLES: PREPRINTS
(*****=equal contribution with primary author credit; [#] = corresponding/senior author, *students in italics)*

1. 2025 *Stephenson J*, Tran T, **Graber TG**[#]. High Intensity Interval Training Intervention For Cognitive and Physical Function in Middle-Aged Mice. Pre-print published at bioRxiv BIORXIV/2025/638126 ; doi: https://doi.org/10.1101/2025.02.14.638126

2. 2024 Pajski ML, Maroto R, *Byrd C*, **Graber TG**[#]. Longitudinal Decline of Exercise Capacity in Male and Female Mice. Pre-print published at bioRxiv 2024.07.29.605646; doi: https://doi.org/10.1101/2024.07.29.605646 (since published at J Gerontol A Biol Sci Med Sci.) Citations:0

3. 2021 **Graber TG**[#], Maroto R, Thompson J, Widen S, Man Z, Pajski ML, Rasmussen BB. Skeletal Muscle Transcriptome Alterations Related to Physical Function Decline in Older Mice. 2021. Pre-print published at bioRxiv 2021.05.20.445050; doi: https://doi.org/10.1101/2021.05.17.444371; since published in JAL) Citations:3

4. 2021 Pajski ML, *Byrd C, Nadigama N, Seguin E, Seguin A, Fennel A*, **Graber TG**[#]. Endurance Exercise Training Modes to Improve Physical Function in Older Mice: HIIT vs. VWR. Pre-print published at bioRxiv 2021.05.20.445050; doi: https://doi.org/10.1101/2021.05.20.445050; Since published in Frontiers of Aging) Citations:2

ARTICLES: UNDER REVIEW (*****=equal contribution with primary author credit; [#] = corresponding/senior author)

1. 2025 *Stephenson J*, Tran T, **Graber TG**[#]. High Intensity Interval Training Intervention For Cognitive and Physical Function in Middle-Aged Mice. Frontiers in Aging. Pre-print previously published at bioRxiv BIORXIV/2025/638126 ; doi: https://doi.org/10.1101/2025.02.14.638126

ARTICLES: IN PREPARATION (*****=equal contribution with primary author credit; [#] = corresponding/senior author)

1. 2025 Pajski ML, *Nandigama N*, Huang W, **Graber TG**[#]. Effect of High Intensity Exercise Training on Baseline Gene Expression in Mouse Gastrocnemius Muscle (in preparation for submission in Summer 2025)

2. 2025 **Graber TG**[#], Pajski ML, Maroto R, Rontoyanni V, Porter C, Rasmussen BB, Wanagat J. Mitochondrial Dysfunction as a Driver of Age-Related Loss of Physical Performance? (in preparation for submission in Fall 2025)

3. 2025 Pajski ML, Nandigama N, McCrary J, Webster A, **Graber TG**[#]. Age-related calcium handling abnormalities in skeletal muscle driving contractile dysfunction and loss of exercise capacity. (in preparation for submission in Fall 2025)

PUBLISHED ABSTRACTS (*students in italics)*

Abstracts at ECU

1. 2021 **Graber TG**, Pajski ML, *Byrd C, Nandigama N, Fennel A, Seguin E, Seguin A*. Maintenance of Physical Function in Adult and Older Adult Mice Using Aerobic Exercise. *Innovation in Aging.* 2021;*5(S1):982.* doi: https://doi.org/10.1093/geroni/igab050

2. 2020 **Graber TG**, *Christopher Byrd, Emily Seguin, Anna Seguin, Alyssa Fennel, Nainika Nandigama*. Endurance Exercise Training Modes to Improve Physical Function in Older Mice: HIIT vs. VWR. *Innovation in Aging*. 2020;4(S1):888. doi: https://doi.org/10.1093/geroni/igaa057.3276

3. 2020 *Brightwell CR*, **Graber TG**, Marota Rosario, Noehren B, Fry CS. Myostatin Mediates Quadriceps Muscle Atrophy And Fibrosis Rapidly After ACL Transection In Novel Murine Model: 355 Board #171 May 27 10:30 AM - 12:00 PM. *Medicine & Science in Sports & Exercise*. 2020;52(7S):85-85. doi: https://doi.org/10.1249/01.mss.0000670960.03850.22

4. 2020 Moro T, **Graber TG**, Reidy PT, Volpi E, Rasmussen BB. Aging Induces A Differential Muscle Transcriptome Profile Following Resistance Exercise Training: 1326 Board #8 May 28 9:30 AM - 11:30 AM. *Medicine & Science in Sports & Exercise*. 2020;52(7S):348-348. doi: https://doi.org/10.1249/01.mss.0000677548.03141.9d

5. 2019 **Graber TG**, Marota R, Thompson J, Widen S, Rasmussen BB. Transcriptome Alterations Associated with Age-Related Decline in Physical Function. *Innovation in Aging*. 2019;3(S1). PMCID: PMC6845708 doi: https://doi.org/10.1093/geroni/igz038.3199

6. 2019 **Graber TG**, Fry CS, Marota Rosario, Rasmussen BB. Exercise Capacity and Physical Function in Older Mice. *Pathobiol Aging Age Relat* Dis. 2019;9(S1):1591258. doi: https://doi.org/10.1080/20010001.2019.1591258

Published Abstracts prior to ECU

7. 2018 **Graber TG**, Fry CS, Maroto Rosario, Rasmussen BB. CFAB: Comprehensive Functional Assessment Battery for Older Mice. *Innovation in Aging.* 2018;2(S1):879. PMCID: PMC6239355 doi: https://doi.org/10.1093/geroni/igy031.3281

8. 2018 **Graber TG**, Fry CS, Rasmussen BB. (2018). Comprehensive Evaluation of Physical Function in Older Mice. *GeroScience*. 2018;40:405. doi: https://doi.org/10.1007/s11357-018-0041-z

9. 2018 Moro T, *Brightwell CR*, Deer RR, **Graber TG**, Galvan E, Fry CS, Volpi E, Rasmussen BB. Effect Of Resistance Exercise Training On Anabolic Resistance To Amino Acids In Healthy Older Adults. *Medicine & Science in Sports & Exercise*. 2018;50(5S):370. doi: https://doi.org/10.1249/01.mss.0000536300.72296.fb

10. 2017 **Graber TG**, *Rawls B*, Tian B, Durham W, Brasier A, Rasmussen BB, Fry CS. (2017). COPD Cachexia in a Murine Model. *Innovation in Aging*. 2017;1(suppl_1): 425-426. doi: https://doi.org/10.1093/geroni/igx009

11. 2017 Lambert B, Kato T, Reidy P, **Graber TG**, *Borack M*, Deer R, Rasmussen BB, Volpi E. Whey Hydrolysate Supplementation Following Resistance Exercise Elicits Similar Anabolic Responses in Both Young and Older Adults: 2334 Board# 347 June 13. *Medicine & Science in Sports & Exercise*. 2017;49(5s):660-661. doi: https://doi.org/10.1249/01.mss.0000518741.65304.18

12. 2016 **Graber TG**, *Rawls B*, Tian B, Durham W, Brasier A, Rasmussen BB, Fry CS. Chronic Obstructive Pulmonary Disease Mouse Model Displays Accelerated Aging Sarcopenic Phenotype. *Gerontologist*. 2016;56(Suppl_3): 111-112. doi: https://doi.org/10.1093/geront/gnw162.435

13. 2016 Moro T, Deer RR, **Graber TG**, Volpi E, Rasmussen BB. Effect of 12 weeks of resistance exercise training on muscular protein anabolic resistance in older adults. SISMES VIII NATIONAL CONGRESS. *Sport Sci Health.* 2016;12:1–91. doi: https://doi.org/10.1007/s11332-016-0305-x

14. 2016 **Graber TG**, *Borack MS*, Reidy PT, Volpi E, Rasmussen BB. Genes Associated with Amino Acid Sensing in Human Skeletal Muscle are Altered by Amino Acid Availability and Acute Lysosomal Perturbation. *The FASEB Journal*. 2016;30(S1): 904.22. doi: https://doi.org/10.1186/s12986-017-0187-1

15. 2015 **Graber TG**, Drummond MJ, *Borack MS*, Volpi E, Rasmussen BB. Myoregulin mRNA Expression is Decreased in Older Adults After One Week of Bedrest. *Gerontologist*. 2015;55(S2):NP,#369. doi: https://doi.org/10.1093/geront/gnv158

16. 2014 **Graber TG**, Kim J-H, Grange R, McLoon L, Thompson LV. Age-Associated Declines in Power and Contractile Velocity Increased Under Heavily Loaded Conditions. *Gerontologist*. 2014;54(S2):689. doi: https://doi.org/10.1093/geront/gnu106:682

17. 2013 **Graber TG**, Thompson LV. Voluntary Resistance Training Protocol for Mice: Model System Mimetic of Human Voluntary Weight Lifting to Investigate Sarcopenia-Related Cellular Mechanisms. *Gerontologist*. 2013;53(S1):531. doi: https://doi.org/10.1093/geront/gnt151

18. 2013 Kim JH, Torgerud W, **Graber TG**, *Liu H*, Thompson LV. Single Muscle Fiber Power Generation with Non-Weightbearing Conditions: Does Muscle of Origin Play a Role? *The FASEB Journal*. 2013;27(S1):lb711. doi: https://doi.org/10.1096/fasebj.27.1_supplement.lb711

19. 2013 Ferguson-Stegall L, **Graber TG**, Thompson LV. Voluntary wheel running can induce functional improvements in young and elderly mice. *Experimental Gerontology*. 2013;7(48):690-690. doi: https://doi.org/10.1016/j.exger.2013.05.027

20. 2012 Ferguson-Stegall L, **Graber TG**, Thompson LV. Functional Adaptations to Voluntary Wheel Running in Young and Elderly Mice. *Medicine and Science in Sports and Exercise*. 2012;44(5S):421-422. doi: https://doi.org/10.1249/01.mss.0000417529.22755.ed

21. 2012 Kim JH, **Graber TG**, Stegall LF, *Liu H*, Asakura A, Thompson LV. The Effect Of Myosin Light Chain 3f On Inactivity-induced Decline In Contractile Velocity In Type II Single Muscle Fibers. *Medicine and Science in Sports and Exercise*. 2012;44(5S):351-351. doi: https://doi.org/10.1249/01.mss.0000417529.22755.ed

22. 2011 **Graber TG**, Chen CN, Mosser KHH, Bratten WM, Ferrington DA, Thompson LV. Mouse models of muscle remodeling. *Experimental Gerontology*. 2011;46(2):213-213. doi: https://doi.org/10.1016/j.exger.2010.11.027

ORAL PRESENTATIONS AT SYMPOSIA, SEMINARS, AND CONFERENCES:

Oral Presentations while at ECU

1. 2025 University of Kentucky Muscle Forum (Lexington, KY). *Role:* Invited Speaker. "Combatting Age-Related Functional Decline." (invited platform talk to muscle research community)

2. 2025 Advances in Skeletal Muscle Biology Conference (Gainesville, FL). *Role:* Invited Speaker. (Abstract call-up short talk) "Effect of High Intensity Interval Training in Middle-Aged Male C57BL/6J" (preprint published and manuscript under review)

3. 2025 Eastern AHEC 2025 Women's Health Conference (Greenville, NC). *Role:* Invited Speaker. "Sarcopenia and Age-Related Functional Decline." (invited local continuing education seminar platform talk for medical staff and faculty)

4. 2024 ECU Department of Comparative Medicine Seminar (Greenville, NC). *Role:* Invited Speaker. "Pre-Clinical Methodology to Investigate Age-Related Functional Loss." (invited local continuing Education Seminar for staff and faculty).

5. 2022 APTA (American Physical Therapy Association) CSM (Combined Sections Meeting; Orlando, Fl). *Role:* Symposium Session organizer (and 1 of 4 invited speakers). Two-hour session, entitled "Bench, Beside and Beyond: Translational Physical Therapy Research to Promote Successful Aging"; my presentation: "Gene Expression Changes Related to Loss of Physical Function During Aging". (on demand symposium at National meeting, since published: Graber et al., 2023)

6. 2021 Sargent College of Health and Rehabilitation, Boston University (Boston, MA). (Invited multi-day symposium and training). *Role:* Organizer, speaker, and trainer. "Theory and Technique of *ex vivo* Contractile Physiology". (invited local symposium/technical training at BU)

7. 2020 Neuroscience Collaborative Meeting at East Carolina University (Greenville, NC, October 20th). *Role:* Invited Speaker. "Mechanisms of Age-Associated Neuromuscular Decline in C57BL/6 Mice". (local symposium)

Oral Presentations Prior to ECU

8. 2019 Advances in Skeletal Muscle Biology in Health and Disease Symposium (University of Florida; Gainesville, FL). (Abstract call-up). "Inducible Skeletal Muscle Specific Knockout of DEP

domain-containing 5 Increases mTORC1 Signaling, Muscle Cell Hypertrophy, and Mitochondrial Respiration." (since published: Graber, et al. 2019a)

9. 2018 Federation of American Societies for Experimental Biology (FASEB) Nutrient Sensing and Metabolic Signaling Meeting. (Snowmass Village, CO) (Abstract call-up). "Inducible depletion of DEPDC5 in skeletal muscle results in constitutive mTORC1 activation and morphological adaptations". (since published: Graber, et al. 2019a)

10. 2016 Gerontological Society of America Scientific Meeting (New Orleans, LA). (Invited Platform Speaker). "Novel Mouse Model of Chronic Obstructive Pulmonary Disease Presents with an Accelerated Aging Sarcopenic Phenotype". (since published: Graber, et al. 2018a)

11. 2016 Experimental Biology (San Diego, CA). (Abstract call-up) "Genes Associated with Amino-Acid Sensing in Human Skeletal Muscle are Altered by Amino Acid Availability and Acute Lysosomal Perturbation". (since published: Graber, et al. 2017)

12. 2015 Hamline University Biology Seminar Series. (St. Paul, MN) (Invited Speaker). "Investigating Sarcopenia Intervention in an Animal Model: A Novel Resistance Training Protocol for Mice" (since published: Graber, 2015c; Graber, et al. 2019b) (local seminar series)

13. 2013 Gerontological Society of America Scientific Meeting (New Orleans, LA). (Invited Platform Speaker). "A Voluntary Resistance Training Protocol for Mice: New Model System for the Exploration of Sarcopenia Interventions Used in Conjunction with a Weight Lifting Mimetic". (since published: Graber, 2015c; Graber, et al. 2019b)

14. 2012 American Aging Association Meeting (Ft. Worth, TX). (Invited Platform Speaker). "C57BL/6 NeuroMuscular Healthspan Scoring System" (since published: Graber, et al., 2013)

15. 2011 American Aging Association Meeting (Raleigh, North Carolina). (Invited short talk). "C57BL/6 Lifespan Study: Muscle Function and Dysfunction". 2nd Place Winner Data Blitz Short Talk Award. (since published: Graber, et al. 2013)

16. 2010 Tenth International Symposium on Neurobiology and Neuroendocrinology of Aging (Bregenz, Austria). (Invited speaker). "Mouse Model of Muscle Remodeling". (since published: Chen, et al., 2014)

17. 2010 American Aging Association Meeting (Portland, OR). (Data Blitz short talk). "Mouse Model of Muscle Remodeling" (May 2010). (since published: Chen, et al. 2014)

POSTER PRESENTATIONS (National and International)

(*italics = student, * = equal contribution; underline = presenter, if not first author)*

Poster Presentations while at ECU

1. 2025 Advances in Skeletal Muscle Biology Conference (Gainesville, FL). *Justin C. Stephenson*, Tuan Tran, *Ashby Dickerson, Lucas Tripp*, **Graber TG**. "Effect of High Intensity Interval Training in Middle-Aged Male C57BL/6J" (preprint published, and under review)

2. 2024 American Aging Association Annual Scientific Meeting 2024 (Madison, Wisconsin). **Graber TG**, Pajski ML, Maroto R. "Longitudinal Decline of Exercise Capacity in Male and Female Mice" (since published: Pajski, et al. 2025, and a preprint)

3. 2023 Advances in Skeletal Muscle Biology in Health and Disease Conference (Gainesville, Fl). **Graber TG**, Pajski ML, *Nandigama N*. "Age-Related Stratification of High Intensity Interval Training-Induced Transcriptomic Changes in Mouse Muscle" (manuscript under development)

4. 2022 American Aging Association Annual Scientific Meeting 2022 (San Antonio, TX). **Graber TG**, Pajski ML, *Kerr P*, *Hemingway N*. "Calcium Handling Dysregulation During Aging Associated with Neuromuscular Functional Decline." (manuscript under development)

5. 2022 Experimental Biology 2022 (Philadelphia. PA). Domire ZJ, *Diefenbach BJ*, **Graber TG**. "Gene Expression in Response to High Frequency, Low Magnitude Loading on the Anterior Cruciate Ligament"

6. 2021 Gerontological Society of America Scientific Meeting 2021 (GSA: virtual meeting due to covid19 pandemic). **Graber TG**, Pajski ML, *Byrd C*, *Nandigama N*, *Fennel A*, *Seguin E*, *Seguin A*. "Maintenance of Physical Function in Adult and Older Adult Mice Using Aerobic Exercise" (since published: Pajski, et al. 2024, and a preprint)

7. 2020 GSA Scientific Meeting 2020 (virtual meeting due to covid19 pandemic). **Graber TG**, *Christopher Byrd, Emily Seguin, Anna Seguin, Alyssa Fennel, Nainika Nandigama*. "Endurance Exercise Training Modes to Improve Physical Function in Older Mice: HIIT vs. VWR" (since published: Pajski, et al. 2024, and a preprint)

8. 2020 American Aging Association Annual Scientific Meeting 2020 (Madison, WI). **Graber TG**, Marota R, Thompson J, Widen S, Mann Z, Rasmussen BB. "Gene Expression in Muscle at the Intersection of Age and Functional Decline." Abstract accepted but meeting canceled due to covid19 pandemic.

9. 2019 GSA Scientific Meeting 2019 (Austin, TX). **Graber TG**, Marota R, Thompson J, Widen S, Rasmussen BB. "Transcriptome Alterations Associated with Age-Related Decline in Physical Function." (since published in Graber, et al. 2023, and a preprint)

Poster Presentations prior to ECU (National and International)

10. 2019 Advances in Skeletal Muscle Biology in Health and Disease Symposium 2019 (UF, Gainesville, FL). **Graber TG,** Marota R, Thompson J, Widen S, Rasmussen BB. "Skeletal Muscle Specific Knockout of DEP domain-containing 5 Increases mTORC1 Signaling, Muscle Cell Hypertrophy, and Mitochondrial Respiration." (since published in Graber, et al. 2019a)

11. 2018 Gerontological Society of America Scientific Meeting 2018 (Boston, MA). **Graber TG**, Fry CS, Marota Rosario, Rasmussen BB. "CFAB: Comprehensive Functional Assessment Battery for Older Mice" (since published in Graber, et al. 2021a)

12. 2018 Barshop Symposium on Aging 2018: Exercise Regulation of Biological Aging (Bandera, TX). **Graber TG**, Fry CS, Marota Rosario, Rasmussen BB. "Exercise Capacity and Physical Function in Older Mice" (since published: Graber, et al. 2021a)

13. 2018 Federation of American Societies for Experimental Biology (FASEB) Nutrient Sensing and Metabolic Signaling Meeting 2018 (Snowmass Village, CO). **Graber TG**, Fry CS, *Brightwell CR*, Moro T, Maroto R, *Bhattarai N*, Porter C, Wakamiya M, Rasmussen BB. "Inducible depletion of DEPDC5 in skeletal muscle results in constitutive mTORC1 activation and morphological adaptations" (since published: Graber, et al. 2019a)

14. 2018 American Aging Association Annual Scientific Meeting 2018 (Philadelphia, PA). **Graber TG**, et al. "Comprehensive Evaluation of Physical Function in Older Mice" (since published: Graber, et al. 2021a)

15. 2017 21st International Association of Gerontology and Geriatrics World Congress 2017 (San Francisco, CA). **Graber TG**, et al. "Cachexia in a Murine Model of COPD" (since published: Graber, et al. 2018a)

16. 2016 Experimental Biology 2016 (San Diego, CA). **Graber TG**, et al. "Genes Associated with Amino Acid Sensing in Human Skeletal Muscle are Altered by Amino Acid Availability and Acute Lysosomal Perturbation" (since published : Graber, et al. 2017)

17. 2016 Advances in Skeletal Muscle Biology in Health and Disease Symposium (UF, Gainesville, FL). **Graber TG**, et al. "Effect of a Lysosomotropic Agent on Amino Acid Sensing Gene Expression in Human Skeletal Muscle" (since published: Graber, et al. 2017)

18. 2015 Gerontological Society of America Scientific Meeting (Orlando, FL). **Graber TG**, et al. "Myoregulin mRNA Expression is Decreased in Older Adults After One Week of Bedrest" (research ongoing)

19. 2014 Gerontological Society of America Scientific Meeting (Washington D.C.). **Graber TG**, et al. "Age-Associated Declines in Power and Contractile Velocity Increased Under Heavily Loaded Conditions" (since published: Graber, et al. 2015)

20. 2014 5th Annual Mayo Clinic Robert and Arlene Kogod Center on Aging Conference (Rochester, Minnesota). **Graber TG**, et al. "Voluntary Resistance Training in Adult and Old Mice Reveals Elements of Anabolic Resistance in Elderly Exercise Response" (since published: Graber, et al. 2019b)

21. 2014 Advances in Skeletal Muscle Biology in Health and Disease Symposium (UF, Gainesville, FL). **Graber TG**, et al. "Novel Model of Voluntary Resistance Training for Mice" (since published: Graber, et al. 2019b)

22. 2013 American Aging Association Meeting (Baltimore, MD). **Graber TG**, et al. "C57BL/6 Lifespan Study: Age-Related Changes in Muscle Power Production and Contractile Velocity" (since published: Graber, et al. 2015)

23. 2012 Advances in Skeletal Muscle Biology in Health and Disease Symposium (UF, Gainesville, FL). **Graber TG**, et al. "C57BL/6 Healthspan Study: A Sarcopenia Model System" (since published: Graber, et al. 2013)

24. 2011 American Aging Association Meeting (Raleigh, North Carolina). **Graber TG,** et al. 2nd Place Winner Nicolai Award for Poster: "C57BL/6 Lifespan Study: Muscle Function and Dysfunction" (since published: Graber, et al. 2015)

25. 2010 Mayo Clinic Robert and Arlene Kogod Center on Aging Conference (Redwing, MN). **Graber TG**, et al. "Mouse Models of Muscle Remodeling" (since published: Chen, et al. 2014)

26. 2010 Neurobiology and Neuroendocrinology of Aging conference (Bregenz, Austria). **Graber TG**, et al. "Mouse Model of Muscle Remodeling" (since published in Chen, et al. 2014)

27. 2010 American Aging Association Meeting (Portland, OR). **Graber TG**, et al. "Mouse Model of Muscle Remodeling" (since published in Chen, et al., 2014)

POSTER PRESENTATIONS (Local, Regional, and Statewide) *italic = student.*

Poster Presentations while at ECU (East Carolina University)

1. 2024 ECU Summer Undergraduate Research Symposium (SURS) (East Carolina University, ECU; Greenville, NC). *Dickenson A*, *Tripp L, Stephenson J, McCrary J, Webster A*, **Graber TG**. "Soleus Cross-Sectional Area and Fiber-Type Shift with HIIT Training in Mice"

2. 2024 CAHS (College of Allied Health Sciences) Research Day Symposium (Greenville, NC). *Stephenson J*, Tran T, **Graber TG**. "Effect of HIIT Training on physical and Cognitive Function in Middle-aged Male Mice"

3. 2024 CAHS Research Day Symposium (Greenville, NC*). Carter H, Dickerson A, McCrary J, Webster A, Bowser E, Rust E, Baucomb B, Stephenson J, Tripp L,* **Graber TG**. "Intrarater and Interrater Reliability in the Analysis of Immunohistochemical Data"

4. 2024 CAHS Research Day Symposium (Greenville, NC). *Webster A*, McCrary J*, Bowser E, Rust E*, **Graber TG**. "Soleus Cross-Sectional Area and Fiber-Type Shift at the Intersection of Age and Exercise"

5. 2024 ECU Research and Creative Activities Week (RCAW). (Greenville, NC) *McCrary J*, Webster A*, Bowser E, Rust E*, **Graber TG**. "Soleus Cross-Sectional Area and Fiber-Type Shift at the Intersection of Age and Exercise"

6. 2024 ECU RCAW. (Greenville, NC) *Carter H*, Dickerson A, McCrary J, Webster A, Bowser E, Rust E, Baucomb B, Stephenson J, Tripp L*, **Graber TG**. "Intrarater and Interrater Reliability in the Analysis of Immunohistochemical Data"

7. 2024 ECU RCAW. (Greenville, NC) *Stephenson J*, Tran T, **Graber TG**. "Effect of HIIT Training on physical and Cognitive Function in Middle-aged Male Mice""

8. 2023 CAHS Research Day Symposium (Greenville, NC). *Gonzalez-Coteras G***,** Pajski ML,

Graber TG. "The Effects of Age on Endothelial Response to High Intensity Interval Training"

9. 2023 CAHS Research Day Symposium (Greenville, NC). *McCrary J*, **Graber TG**. "Age-Related Changes to Calcium Handling Regulation in Mouse Skeletal Muscle" Won "People's Choice Award" for Best Poster.

10. 2023 CAHS Research Day Symposium (Greenville, NC). *Peterson J, Gonzalez-Coteras G*, **Graber TG**. "HIIT as a Preventative Measure for Normal Age-Related Cognitive Decline"

11. 2023 CAHS Research Day Symposium (Greenville, NC). *Carter H*, *Peterson J*, **Graber TG**. "HIIT Training and preservation of muscle and mitochondrial function in mice"

12. 2023 ECU RCAW (Greenville, NC). *Carter H*, *Peterson J*, **Graber TG**. "HIIT Training and preservation of muscle and mitochondrial function in mice"

13. 2022 25th Annual Sealy Center on Aging Forum on Aging (UTMB, Galveston, TX). Maroto R, **Graber TG**, Kudlicki A, Russell W, Rasmussen BB. "Metabolomic Signature in Skeletal Muscle from Hyperactive mTORC1 Mice"

14. 2022 CAHS Research Day Symposium (Greenville, NC). *Hollowell WC*, Pajski ML, **Graber TG**. "Does High Intensity Interval Training in Older Mice To Restore Age-Related Alterations to Activity Patterns?"

15. 2022 ECU RCAW (Greenville, NC). Oral Presentation. *Hemingway NP*, Pajski ML, **Graber TG**. "Physiological Relevance of Gene Expression Changes during Aging Associated with Declining Physical Function"

16. 2022 ECU RCAW (Greenville, NC) *Hollowell WC*, Pajski ML, **Graber TG**. "Does High Intensity Interval Training in Older Mice To Restore Age-Related Alterations to Activity Patterns?"

17. 2021 SNCURS (State of North Carolina Undergraduate Research Symposium) (NC, virtual). *Schmitt A*, Pajski ML, Fisher-Wellman KH, **Graber TG**. "Optimizing Mass Spectrometry Protein Detection in Aging Mouse Muscle" (manuscript currently in preparation)

18. 2021 SNCURS (NC, virtual). *Kerr P*, *Hemingway N*, Pajski ML, Marota R, *Nandigama N*, **Graber TG**. "Muscle Calcium Handling Changes in Aging Mice"

19. 2021 SNCURS (NC, virtual). *Hemingway N*, Pajski ML, *Kerr P*, *Nandigama N*, **Graber TG**. "Age-Related Changes in Calcium Handling Gene Expression"

20. 2021 CAHS Research Day Symposium (Greenville, NC, virtual). *Nandigama N,* Pajski ML, *Byrd C*, *Fennel A*, *Seguin E*, *Seguin A*, **Graber TG**. "Calcium Handling Abnormalities in Aging Muscle Associated with Declining Physical Function"

21. 2021 CAHS Research Day Symposium (Greenville, NC, virtual). *Byrd C*, Pajski ML, **Graber**

TG. "Increasing Physical Activity to Preserve Function in Older Adults: Lessons from Mouse Models of Endurance" (since published in Pajski, et al. 2021 preprint and currently under review)

22. 2021 ECU RCAW (Greenville, NC, virtual). *Nandigama N*, *Fennel A*, Pajski ML, *Byrd C*, *Seguin E*, *Seguin A*, **Graber TG**. "Endurance Training to Improve Functional Status in Older and Adult Mice" (since published in Pajski, et al. 2021 preprint and currently under review)

23. 2020 SNCURS (NC, virtual). *Alyssa Fennel, Nainika Nandigama, Christopher Byrd, Emily Seguin, Anna Seguin,* **Graber TG**. "Endurance Training to Preserve Physical Function in Older Mice" (since published in Pajski, et al. 2021 preprint and currently under review)

Poster Presentations prior to ECU (Local, Regional, and Statewide)

24. 2017 21st Annual Sealy Center on Aging Forum on Aging (UTMB, Galveston, TX). **Graber TG**, et al. "Repetitive TLR-3-mediated Lung Damage Induces Skeletal Muscle Adaptations and Cachexia" (since published in Graber, et al. 2018a)

25. 2016 20th Annual Sealy Center on Aging Forum on Aging (Galveston, TX). **Graber TG**, et al. "DEPDC5 Muscle Specific Knockout Mouse Model to Investigate Effect of Constitutively Active mTORC1 on Physical Function, Sarcopenia, and Longevity" (since published in Graber, et al. 2019a)

26. 2015 19th Annual Sealy Center on Aging Forum on Aging (Galveston, TX). **Graber TG**, et al. "Regulation of Myoregulin and Sarcolipin in Older Adults" (research ongoing)

27. 2014 18th Annual Minnesota Muscle Symposium (UMN, Minneapolis, MN). **Graber TG**, et al. "Novel Resistance Training Protocol Demonstrates Anabolic Resistance in Older Mice" (since published in Graber, et al. 2019b)

28. 2011 University of Minnesota Aging and Neurobiology Spring Symposium (Minneapolis, MN). **Graber TG**, et al. "*in vitro* Contractile Physiology in Aging Mice"

Grant and Research Support

Current Support:

2024-2025 Sponsored Activities and Research Catalyst Program (SPARC).
Role: **PI** *Co-Is*: none
Grant Title: "High Intensity Interval Training to Mitigate Functional Aging in Mice"
Outcome: funded *Funds Requested:* $10,000.00 *Funded Direct Costs:* $9747
Sponsor: ECU (East Carolina University) REDE (Office of Research Development, Economic Development & Engagement)

2023 1 S10 OD032217-01A1. PA-22-080
Role: **Investigator** (Neufer, PI; numerous Co-Is)
Grant Title: "Metabolic Phenotyping System for ECU Core"
Synopsis: Purchased a metabolic phenotyping system.

Outcome: Funded. *Funds Requested:* $500,828.00 *Funded Total Costs:* $500,828.00
Sponsor: NIH

2022-Present Internal Funding from East Carolina University (ECU).
Role: **PI.**
Synopsis: Currently examining the intersection between the transcriptome/proteome, age, and physical/cognitive function; and how exercise modulates this relationship.

Grant Applications (pending):

2025 Research Project (R01) PA-25-301 Grants.gov Tracking # GRANT14420962
Role: **PI**. Co-Is: Balaji Krishnan (external, UTMB), ECU: Tuan Tran, Tonya Zeczycki, Weihua Huang, Srinivas Sriramula
Grant Title: "High Intensity Exercise to Improve Cognition and Brain Health in Normal and Pathological Aging"
Requested Total Costs: $3,563,189.00
Outcome: submitted to NIH May 29th, 2025, awaiting peer review
Sponsor: NIH

Completed Support:

2023-2024 CAHS Pilot Research Funding Program.
Role: **PI** *Co-Is*: none.
Grant Title: "High Intensity Exercise: Effect on Cognitive and Physical Functional Aging in Middle-Aged Mice"
Synopsis: We tested male middle-aged C57BL/6 mice for body composition, maximal isometric plantar flexor torque, and physical and *cognitive* function pre- and post-intervention. Mice were randomized into sedentary control and high intensity interval training groups (12-week training).
Outcome: Funded *Funds Requested:* $5000.00 *Funded Total Costs*: $5000.00
Sponsor: ECU CAHS (East Carolina University College of Allied Health Sciences)

2024 Undergraduate Research and Creative Activity Award (URCA).
Student: Ashby Dickerson *Role:* **Research Mentor/PI**.
Description: URCA is a competitive ECU internal grant to fund undergraduate research.
Grant Title: “Effect of High Intensity Interval Training on Soleus Muscle in Middle-Aged Mice”.
Synopsis: We determined any potential changes in cross sectional area and fiber type of the Soleus muscle in middle-aged C57BL/6 male mice that were randomized to sedentary control and high intensity interval training (12 weeks).
Outcome: Funded *Funds Requested:* $2000.00 *Funded Direct Costs:* $1291.00
Sponsor: East Carolina University (ECU)

2021 Undergraduate Research and Creative Activity Award (URCA).
Student: Nainika Nandigama. *Role:* **Research Mentor/PI**.
Description: URCA is a competitive ECU internal grant to fund undergraduate research.
Grant Title: “Calcium Handling Abnormalities in Aging Muscle Associated with Declining Physical Function”.
Synopsis: We isolated total RNA from mouse muscle from adult and older mice who had been exercised in one of two different modalities (wheel running or high intensity interval training), or were sedentary controls, and then performed q-RT-PCR to examine key calcium handling proteins that changed with age, to determine the effect of exercise on their expression.
Outcome: Funded *Funds Requested:* $2000.00 *Funded Direct Costs:* $2000.00
Sponsor: East Carolina University

2019-2022 Internal Start-Up Funding from East Carolina University (ECU).
Role: **PI.**
Synopsis: Examined the intersection between the transcriptome/proteome, age, and physical function; and how exercise modulates this relationship.

2017-2019 P30 AG024832 Pilot/Developmental Grant (sub-award to P30).
Role: **PI.** *Co-Is*: none.
Description: This mechanism is essentially an internally competitive R03, and the application used that format with all forms and attachments.
Grant Title: "Aging Skeletal Muscle and Sarcopenia in the Murine Model"
Synopsis: By establishing a series of functional tests, combined into a scoring system, the primary purpose of this study is to establish a mouse non-invasive healthspan Comprehensive Functional Assessment Battery (CFAB) (under review). Using functional tests such as (but not limited to) rotarod (overall motor function), treadmill running (endurance), grip meter (strength), and in vivo contractile physiology (absolute strength, contractile velocity, power), I assessed mice cross-sectional cohorts (approximately 6, 24, and 28 months of age) using mice obtained from the NIA aging mouse colony. Tissue was collected for downstream analysis including, but not limited to in vitro contractile muscle physiology, immunohistochemistry, proteomic analysis, q-rt-PCR, and next generation sequencing (RNA-seq). I continued with this project in my current fully independent position and brought mice, samples, and data with me.
Outcome: Funded *Funds Requested:* $100,000.00 *Funded Direct Costs:* $58,000.00
Sponsor: National Institute of Health (NIH), National Institute on Aging (NIA), Claude D. Pepper Older Americans Independence Center (OAHI)

2016-2019 TL1 TR001440 (Hellmich, TL1 PD).
Role: **Postdoctoral Research Fellow** *Faculty Mentors:* Blake B. Rasmussen, Don W. Powell
Description: Post-doctoral research fellowship (identical to an F32, but is an internally competitive sub-award of TL1TR001440)
Grant Title: "Aging Muscle and Sarcopenia"
Synopsis: Wrote and had approved an IRB then derived, isolated, cultured and banked myogenic primary cells and fibroblasts from muscle biopsy samples obtained from 27 older adults. I did a pilot project using RNAi to knockdown expression of a calcium handling regulator. Also investigated anabolic muscle metabolism in the TORC1 signaling cascade by creating, breeding, and testing a muscle-specific conditional knock-out of DEPDC5 (a subunit of the negative regular of mTORC1 GATOR1).
Outcome: Funded *Direct Costs:* $176,738.00. (only costs associated to support trainee)
Sponsor: NIH, National Center for Advancing Translational Sciences, Ruth L. Kirschstein National Research Service Award (NRSA) TL1 Fellowship (sub-award to TL1).

2016 L30 AG053902.
Role: **PI.** *Co-Is*: none.
Description: Loan Repayment Program for Clinical Researchers.
Grant Title: "Mechanisms Responsible for Anabolic Resistance in Older Adults"
Synopsis: Derived, isolated, cultured and banked myogenic primary cells and fibroblasts from muscle biopsy samples obtained from 27 older adults. I did a pilot project using RNAi to knockdown expression of a calcium handling regulator. This is a concurrent project as described for the TL1 fellowship listed above.
Outcome: Funded *Direct Costs:* $29,778.64
Sponsor: NIH, NIA

2013-2015 F31 AG044108 PA-21-051 Ruth L. Kirschstein NRSA.
Role: **PI**. *Co-Is*: none. *Faculty Mentor:* LaDora V. Thompson
Description: Pre-doctoral *research fellowship.*

Grant Title: "Neuromuscular Healthspan Study: Sarcopenia Intervention"
Synopsis: Sarcopenia interventions will restore functional ability and extend healthspan. In preliminary work, using a cross-sectional cohort of mice to characterize age-related declines in functional and physiological ability, we developed a Neuromuscular Healthspan Scoring System to evaluate potential treatments. The next step was to test an intervention for sarcopenia. Resistance exercise is a well-accepted treatment for sarcopenia. Hence, the hypothesis for the proposed research was that resistance training will result in improved physical function, strength, and healthspan. This hypothesis was evaluated with two Specific Aims: (1) Develop a resistance training model for mice and (2) Determine the effects of a resistance exercise training protocol on functional performance, muscle contractility, muscle remodeling and cellular mechanisms contributing to hypertrophy in adult, old, and aged mice. The main mechanisms examined included activation of the mTORC1 pathway. I engaged in all aspects of the study as the PI.
Outcome: Funded *Direct Costs:* $72,156.00
Sponsor: NIH, NIA.

Other Completed Salary Support from Training Grants:

2015-2016 H133P110012 Interdisciplinary Rehabilitation Research Postdoctoral Training Grant
Role: **Postdoctoral Research Fellow** (Ottenbacher, PI)
Grant Title: "Interdisciplinary Rehabilitation Research Training Program Postdoctoral Fellow".
Outcome: Funded Direct Costs: $41,250.00. (only costs associated to support trainee)
Sponsor: National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR)

2010-2013 T32 AG29796
Role: **Pre-Doctoral Trainee** (Thompson and Ferrington, PIs).
Grant Title: "Functional Proteomics of Aging".
Outcome: Funded Direct costs: $114,234.00. (only costs associated to support trainee)
Sponsor: NIH, NIA

Grants Applications Under Development:

2025 R01. PA-20-185
Role: **PI.** *Co-Is:* Srinivas Sriramula. Lisandra de Castro Braz, Tonya Zeczycki, Hu Huang
Grant Title: "High Intensity Exercise Training to Modulate Cardiovascular and Neurovascular Health"
Requested Total Costs: $2,606,000.00.
Progress: Preliminary data still being collected, projected submission in Oct 2025.
Sponsor: NIH NIA

2025 R03. PAR-23-179 "Small Research Grant Program for the Next Generation of Researchers in AD/ADRD Research"
Role: **PI** *Co-Is:* Hu Huang, Tuan Tran, Balji Krishnan, Tonya Zeczycki
Grant Title: "Intersection of Age, Exercise, and Cognitive/Physical Function"
Requested Total Costs: $251,000.00
Progress: Rough Draft stage, data collected; projected Oct 2025 submission.
Sponsor: NIH NIA

Grant Applications (unfunded)

2025 Nathan Shock Center (Buck-USC) Pilot Grant.
Role: **PI** *Co-Is*: none
Grant Title: "Multiomics Investigation of the Effect of HIIT on Mouse Functional Aging".

Outcome: Not Funded. *Direct Costs Requested:* $50,000.00.
Sponsor: NIH Nathan Shock Center (Buck-USC)

2024 HF-GRO
Role: **PI** *Co-Is:* Tuan Tran, Hu Huang, Tonya Zeczycki, Weihua Huang, John McCarthy.
Grant Title: "Intersection of Aging, Exercise and Functional Decline: Role of Inter-Organ Crosstalk"
Outcome: LOI not selected for full proposal. Not funded. *Funds Requested:* $3,125,000.00
Sponsor: Hevolution Foundation [ed. Note: private nonprofit foundation]

2023 1 R21 AG086815-01. PA-20-195
Role: **PI.** *Co-Is:* Kelsey Fisher-Wellman
Grant Title: "Mechanisms of Differential Neuromuscular Functional Aging"
Requested Total Costs: $429,404.
Outcome: submitted and reviewed, not discussed, not funded
Sponsor: NIH

2023 Undergraduate Research and Creative Activity Award (URCA).
Student: Hayden Carter Role*:* **Research Mentor/PI**.
Description: URCA is a competitive ECU internal grant to fund undergraduate research.
Grant Title: "Exercise Effect on Capillarization in Adult and Older Adult Mice".
Requested Total Costs: $1519.64
Outcome: submitted and reviewed, not funded
Sponsor: East Carolina University

2023 *Sagol Network GerOmic Award for Junior Faculty*
Role: **PI** *Co-Is:* Kelsey Fisher-Wellman
Grant Title: "Modulating Differential Functional Aging with High Intensity Exercise"
Requested Total Costs: $150,000.00
Outcome: submitted letter of intent, reviewed, not solicited for full proposal, not funded
Sponsor: AFAR (American Federation for Aging Research (https://www.afar.org/funding-opportunities) [ed. Note: private nonprofit foundation]

2022 *Whitehall Foundation Grants-in-Aid*
Role: **PI** *Co-Is:* Erzebet Szatmari, Tuan Tran
Grant Title: "Efficacy of Different Exercise Modes to Improve Cognition"
Requested Total Costs: $37,500.00
Outcome: submitted and reviewed, not funded
Sponsor: Whitehall Foundation (http://www.whitehall.org/grants/) [ed. Note: private nonprofit foundation]

2022 Glenn Foundation for Medical Research and AFAR Grants for Junior Faculty
Role: PI. *Co-Is:* none.
Grant Title: "Efficacy of High Intensity Exercise Modalities to Improve Cognitive Function and Brain Metabolism in Older Mice"
Requested Total Costs: $108,000.00
Outcome: submitted letter of intent; not solicited for full proposal, not funded.
Sponsor: America Federation on Aging (AFAR), [ed. Note: private nonprofit foundation]

2022 1 R21 AG075568-01A1. PA-20-195
Role: **PI.** *Co-Is:* Kelsey Fisher-Wellman
Grant Title: "Transcriptomic/Proteomic Alterations Underlying Differential Neuromuscular Functional Aging"

Requested Total Costs: $429,404.00
Outcome: resubmitted 03/16/22, 25% rank, Overall Impact factor 37; pay line 10%, not funded
Sponsor: NIH

2021 1 S10 OD032217-01. PA-22-080
Role: **Co-I** (Neufer, PI; numerous other CO-Is)
Grant Title: "Metabolic Phenotyping System for ECU Core"
Requested Total Costs: $500,828.00
Outcome: submitted and reviewed, not funded
Sponsor: NIH

2021 1 DP2 OD032841-01. RFA-RM-23-005
Role: **PI.** *Co-Is:* none allowed by RFA.
Grant Title: "Exercise as Anti-Aging Regenerative Medicine: Role of Cellular Communication"
Requested Total Costs: $2,251,485.00
Outcome: submitted and reviewed, not discussed, not funded
Sponsor: NIH

2021 Impetus Grant.
Role: **PI.** *Co-Is:* Kelsey Fisher-Wellman
Grant Title: "Uncovering Mechanisms of Differential Neuromuscular Aging"
Requested Total Costs: $293,040.00
Outcome: submitted and reviewed, not funded.
Sponsor: Norn Group [ed. Note: private nonprofit foundation]

2021 1 R01 AG076720-01. PAR-21-038 Stephen I. Katz Early Stage Investigator Research Project
Role: **PI**. *Co-Is:* Erzebet Szatmari, Tuan Tran, Kelsey Fisher-Wellman
Grant Title: "Mechanisms of Exercise to Mitigate Cognitive Decline and Dementia")
Requested Total Costs: $2,627,370.00
Outcome: submitted and reviewed, not discussed, not funded
Sponsor: NIH

2021 r25 PAR-21-168
Role: **Co-I**. (Aziz, PI; multiple Co-Is)
Grant Title: "Summer Excellence in Biomedical Research (SEIBR) at ECU"
Requested Total Costs: $540,000.00
Outcome: submitted and reviewed, not funded.
Sponsor: NIH

2021 1 R21 AG075568-01. PA-20-195
Role: **PI.** *Co-Is:* Kelsey Fisher-Wellman, Piotr Mieczkowski, Tristan De Buysscher
Grant Title: "Transcriptomic/Proteomic Alterations Underlying Differential Neuromuscular Functional Aging"
Requested Total Costs: $429,404.00
Outcome: submitted and reviewed: *21% rank, Overall Impact factor 35; pay line 10%, not funded*)
Sponsor: NIH

2020: Glenn Foundation for Medical Research and AFAR Grants for Junior Faculty
Role: **PI.** *Co-Is:* none.
Grant Title: "Mechanisms of Differential Skeletal Muscle Aging and Related Physical Function Decline"
Requested Total Costs: $108,000.00
Outcome: submitted letter of intent; not solicited for full proposal, not funded.

Sponsor: America Federation on Aging (AFAR), [ed. Note: private nonprofit foundation]

2018 Irene Diamond Fund/AFAR Postdoctoral Transition Awards in Aging
Role: **PI.** *Faculty Mentors:* Blake B. Rasmussen and Chris Fry
Grant Title: " COPD Cachexia Mouse Model"
Description: Transition to independence award (similar to K99), no longer awarded
Requested Total Costs: $162,000.00.
Outcome: submitted and reviewed, not funded
Sponsor: America Federation on Aging (AFAR), [ed. Note: private nonprofit foundation]

PROFESSIONAL/EDUCATIONAL HONORS, TRAVEL GRANTS, and AWARDS:

2023 Won "People's Choice Award" for *Best Poster* at the ECU CAHS Research Day Symposium (Greenville, NC). *McCrary J*, **Graber TG**.
"Age-Related Changes to Calcium Handling Regulation in Mouse Skeletal Muscle"

2023 Invited to serve as *Co-Chair* for the "Skeletal Muscle Aging" session at the 2023 Advances in Skeletal Muscle Biology meeting (Gainesville, FL).

2021 Gerontological Society of America (GSA): *Member Spotlight*. published in: Gerontology News. August 2021;49(8):pg3 url: https://issuu.com/gerontologynews/docs/august_2021

2018 FASEB (Federation of American Societies for Experimental Biology) *Travel Award* at FASEB Nutrient Sensing and Metabolic Signaling in Snowmass CO. "Inducible depletion of DEPDC5 in skeletal muscle results in constitutive mTORC1 activation and morphological adaptations"

2018 American Aging Association (AGE) *Outstanding Poster Award* (Postdoc division) at 2018 AGE Scientific Meeting "Comprehensive Evaluation of Physical Function in Older Mice"

2016-2019 Received *TL1 Fellowship*. TL1 TR001440 (Hellmich, TL1 PD). *Role:* **Postdoctoral Research Fellow** *Faculty Mentors:* Blake B. Rasmussen, Don W. Powell

2016 GSA *Travel Award* Stipend for Oral Presentation: "Novel Mouse Model of Chronic Obstructive Pulmonary Disease Presents with an Accelerated Aging Sarcopenic Phenotype"

2016 Winner of 2016 *Team Science Award* in recognition of work done while mentoring a student in the Bench Tutorial Program at UTMB

2016 American Society of Nutrition Energy and Macronutrient Metabolism Research Interest Section Competitive Travel Award for *Best Abstract* in an Oral Symposium (Experimental Biology 2026).

2015-2016 Received H133P110012 Interdisciplinary Rehabilitation Research Postdoctoral Training *Fellowship*. *Role:* **Postdoctoral Research Fellow** *Faculty Mentors:* Blake B. Rasmussen and Ken Ottenbacher.

2014 UMN (University of Minnesota) COGS (Council of Graduate Students) Competitive *Travel Award*
2014 UMN COGS Competitive Professional Development Award

2013 UMN GAPSA (Graduate and Professional Student Association) Competitive *Travel Award*

2012 AGE *Travel Award*

2011 AGE Meeting (Raleigh, North Carolina)
2nd Place Winner Data Blitz *Short Talk Award*

2nd Place Winner *Walter R. Nicolai Award for Poster*
"C57BL/6 Lifespan Study: Muscle Function and Dysfunction"

2010 Neurobiology and Neuroendocrinology of Aging (Bergen, Austria) Competitive *Travel Award* Stipend for Oral Presentation.

2010 UMN GAPSA Competitive *Travel Award*

2010-2013 Accepted into T32 AG29796 *Training Grant*. *Role:* **Pre-Doctoral Trainee** *Faculty Mentors:* LaDora V. Thompson and Deb Ferrington.

MEMBERSHIP IN SCIENTIFIC SOCIETIES/PROFESSIONAL ORGANIZATIONS:

2016-Present American Physiological Society (APS)

2013-Present Gerontological Society of America (GSA)

2010-Present American Aging Association (AGE)

SERVICE and LEADERSHIP

COMMITTEE RESPONSIBILITIES at ECU

2024-Present *Level:* University. *Unit:* East Carolina University (ECU)
Committee: ECU Institutional Animal Care and Use Committee (*IACUC*)
Role: Member

2023-Present *Level:* College. *Unit:* East Carolina University (ECU) College of Allied Health Sciences (CAHS)
Committee: Research & Scholarly Activities Committee
Role: Member

2023-2024 *Level:* Department. *Unit:* ECU Dept. of Physical Therapy
Committee: Search Committee for Dept. of Physical Therapy Tenure Track Faculty
Role: Member

2022-Present Level: University. *Unit:* East Carolina University (ECU)
Committee: ECU Institutional Biosafety Committee (*IBC*)
Role: Member

2021-2024 *Level:* Department. *Unit:* ECU Dept. of Physical Therapy
Committee: PT Admissions-Related Task Force
Role: Member

2021-2022 *Level:* Department. *Unit:* ECU Dept. of Kinesiology
Committee: Search Committee for two ECU Dept. of Kinesiology Tenure Track Faculty
Role: Member

2019-Present *Level:* Department. *Unit:* ECU Dept. of Physical Therapy
Committee: Admissions Committee
Role: Member

2019-Present *Level:* Department. *Unit:* ECU Dept. of Physical Therapy
Committee: Scholarship Committee
Role: Member

OTHER SERVICE at ECU

2023-2024 *Level:* University. *Unit:* East Carolina University (ECU)
Role: Judge for RCAW (Research and Creative Activities Week), SuperJudge 2024

2024 *Level:* College. *Unit:* College of Allied Health Sciences (CAHS)
Role: Judge for CAHS Research Day

COMMITTEE RESPONSIBILITIES at Prior to ECU

2017-2018 *Level:* University. Unit: University of Texas Medical Branch
Committee: IACUC Animal Researcher Forum Discussion Group
Role: Member

2014 *Level:* Department. *Unit:* University of Minnesota (UMN) Dept. of Rehabilitation Science
Committee: Committee to draft Rehabilitation Science Graduate Objectives
Role: Student member

2010-2014 *Level:* Department. *Unit:* UMN Dept. of Rehabilitation Science
Committee: Student/Faculty Liaison Rehabilitation Science Dept.
Role: Student non-voting member at faculty meetings

2011 *Level:* University. *Unit:* UMN Medical School
Committee: University of Minnesota Aging and Neurobiology Spring Symposium
Role: Co-Organizer, MC.

PROFESSIONAL SERVICE

JOURNAL REVIEWER/EDITOR:

Ad Hoc Reviewer: Physical Therapy and Rehabilitation, Behavioral and Brain Functions, Aging Cell, Geroscience, Journal of Applied Physiology, Scientific Reports, Journals of Gerontology Biological Sciences, Experimental Gerontology, Experimental Physiology, Muscle & Nerve, Journal of Aging Research, Nutrition and Healthy Aging, Physical Therapy Journal, Sports Medicine and Health Science; Frontiers in Physiology (Review Editor 2018-2019), Aging, Life Sciences, BMC Geriatrics

PROFESSIONAL SOCIETY RESPONSIBILITIES

2018-2024 Gerontological Society of America (GSA) Scientific Meeting Abstract Reviewer

2023 Developed and helped organize the FEW interest group GSA Meeting Symposium (not accepted)

2022-2024 GSA co-convener of the Fitness, Exercise, and Wellness (FEW) Interest Group

2019 2019 GSA Scientific Meeting (Boston, MA) New Member Event Panelist for Biological Science Section

2017 21st International Association of Gerontology and Geriatrics 2017 World Congress of Gerontology and Geriatrics (San Francisco, CA) Abstract Reviewer

2016 Co-chair of 2016 GSA Scientific Meeting (San Diego, CA) ESPO (Emerging Scholars and Professionals Organization) Symposium, entitled, “Biological Aging: From Bench to Bedside and Back Again.”

2016 Member of GSA ESPO Leadership Position Nominations Committee
2015-2017 ESPO representative to the GSA Biological Sciences section executive committee

STUDY SECTION / GRANT REVIEW

2025 2025/05 ZAG1 ZIJ-3 (M1) NIH NIA Special Emphasis Panel for R61/R33 applications submitted in response to "The Impact of Stressors on the Biological Mechanisms of Aging and Other Aging-Associated Outcomes in Experimental Model Systems." *Role:* Ad hoc reviewer.

2025 ECU Sponsored Activities and Research Catalyst Program (SPARC) grant review. *Role:* Ad hoc reviewer.

2024 NIH CMAD (Cellular Mechanisms in Aging and Development) Oct. 2024 Meeting. *Role:* Early Career Reviewer.

TEACHING and MENTORING

TEACHING

Teaching at ECU

2023-Present PTHE 8205 Muscle Physiology; 3 credits.
Location: East Carolina University
Audience: Doctor of Physician Therapy Graduate Students
Role: Course Director as of 2024 *(*Teaching Assistant in 2023)
Responsible for: overall course management, syllabus, course development, online components, lecture content preparation and delivery, exam preparation and grading.

2020-Present PTHE 8104 Human Physiology and Pathophysiology; 3 credits.
NOTE: 2021-present hybrid distance learning platform, >50% in-person; 2020 100% distance learning (mostly asynchronous)
Location: East Carolina University
Audience: Doctor of Physical Therapy Graduate Students
Role: Course Director of record and main instructor:
Responsible for: overall course management, syllabus, course development, online components, lecture content preparation and delivery, exam preparation and grading.

2023-2025 KINE 4500 004 Independent Study in KINE; 1 credit.
Location: East Carolina University
Audience: Kinesiology Department Advanced Undergraduate Students
Role: Course instructor of record
Responsible for: overall course management, research mentor and grading

2023-2024 KINE3805 Exercise Physiology
Location: East Carolina University
*Audience: U*pper-division Kinesiology undergraduate students.
Role: Guest Lecturer
Responsible for: short guest lecture.

2023-Present PTHE 8907 Research Concentration; 2 credits.
Location: East Carolina University
Audience: Doctor of Physician Therapy Graduate Students
Role: Course instructor of record
Responsible for: overall course management, research mentor for capstone project and grading

2022-2024 KINE7000 Master's Thesis; 3 credits
Location: East Carolina University
Audience: Exercise Science MS Students (Kinesiology Department)
Role: Instructor of record
Responsible for: mentoring thesis as committee chair

2021 KINE7335 Seminar in Bioenergetics
Location: East Carolina University
Audience: Bioenergetics and Exercise Science PhD Students (Kinesiology Department)
Role: Guest Lecturer
Responsible for: lecture content preparation and delivery

2021-2023 PTHE 8906-033 Research Concentration; 3 credits.
Location: East Carolina University
Audience: Doctor of Physician Therapy Graduate Students
Role: Course instructor of record
Responsible for: overall course management, research mentor for capstone project and grading.

2021-2022 Brody High School Medical Research Honors Program
Location: East Carolina University
Audience: community outreach: local High School students enrolled in the program at ECU.
Role: Guest Lecturer
Responsible for: lecture content preparation and delivery

2020-2022 PADP 6040 Human Physiology and Pathophysiology; 4 credits.
NOTE: hybrid distance learning platform, >50% in-person
Location: East Carolina University
Audience: Physician's Assistants Graduate Students
Role: Course Director of record and main instructor
Responsible for: overall course management, syllabus, course development, online components, lecture content preparation and delivery, exam preparation and grading.

2020 PTHE 8907-031 Research Concentration, 3 credits
Location: East Carolina University
Audience: Physician Assistants Graduate Students
Role: Course instructor of record
Responsible for: overall course management, research mentor for capstone project and grading.

2019-2020 PADP 6040 Human Physiology; 5 credits.
NOTE: 2020 100% distance learning (mostly asynchronous)
Location: East Carolina University
Audience: Physician's Assistants Graduate Students
Role: Course Director of record and main instructor:
Responsible for: overall course management, syllabus, course development, online components, lecture content preparation and delivery, exam preparation and grading.

2019 PTHE 8104 Pharmacological Agents and Pathological Processes; 3 credits.
Location: East Carolina University
Audience: Doctor of Physical Therapy Graduate Students
Role: Course Director of record and main instructor.
Responsible for: overall course management, syllabus, course development, online components, lecture content preparation and delivery, exam preparation and grading.

Teaching prior to ECU

2018 PT 6354 Clinical Pathology, 3 credits.
NOTE: 100% distance learning (asynchronous)
Location: University of Texas Medical Branch
Audience: Doctor of Physical Therapy Graduate Students
Role: Guest Lecturer: "Muscle Physiology" and "Metabolism"
Responsible for: lecture content preparation and delivery, and exam questions.

2011-2014 PT 6281 - Scientific Foundations I: Theory of Therapeutic Exercise, 3 credits.
Location: University of Minnesota.
Audience: Doctor of Physical Therapy Graduate Students
Role: Guest Lecturer. Many topics, including Exercise Physiology: Relationship to Physical Therapy (2014), Physiology of Resistance Training (2013, 2014), ACSM Fitness Recommendations (2013), Physiology of Endurance Exercise (2013, 2012), Excitation/Contraction Coupling (2011), Exam Proctoring (2011-2014)
Responsible for: lecture preparation/delivery, exam questions, and testing.

2013 PT8132 Research Seminar 2, 3 credits.
Location: University of Minnesota
Audience: Doctor of Physical Therapy Graduate Students
Role: Co-instructor of record.
Responsible for: syllabus, course development, including a significant online component, lectures, lab activities, and grading.

2013 PT8131 Research Seminar 1, 3 credits
Location: University of Minnesota.
Audience: Doctor of Physical Therapy Graduate Students
Role: Co-instructor of record.
Responsible for: syllabus and course development/content, designing of labs, online component, lectures, and grading.

THESIS COMMITTEES

2024 First Year Rehabilitation Sciences PhD Project Committee
Unit/Dept: ECU Rehabilitation Sciences PhD
Role: Committee Member (Erzebet Szatmari, Chair)
Student: Keerthana Surabhi
Title: "Validation of novel molecular optogenetic tools to study cytoskeletal dynamics in neurodegeneration"

2022-2024 Master's Degree Thesis Committee
Unit/Dept: ECU Kinesiology
Role: Committee Chair
Student: Justin Stephenson
Thesis: "Effect of HIIT on Physical and Cognitive Function in Middle-Aged Mice"

2022-2023 Master's Degree Thesis Committee
Unit/Dept: ECU Kinesiology
Role: Committee Member (Nick Brosky, chair)
Student: Jacob Lindman

Thesis: "Effects of a high-fat diet on skeletal muscle mitochondria"

2022-2023 Master's Degree Thesis Committee
Unit/Dept: ECU Kinesiology
Role: Committee Chair
Student: Gabe Gonzalez-Contreras
Thesis: "Age-related Changes to Muscle Vascularity Mediated by Endurance Exercise" (tentative title)

2020-2021 PhD Dissertation Committee
Unit/Dept: ECU Kinesiology
Role: Committee Member (Joe Houmard, chair)
Student: Alec B. Chaves, Sr.
Dissertation: "Effect of prenatal maternal obesity and exercise on metabolic programming in offspring mesenchymal stem cells"

2019-2020 Master's Degree Thesis Committee
Unit/Dept: ECU Kinesiology
Role: Committee Member (Zac Domire, chair**)**
Student: Brian Diefenbach
Thesis: "Gene Expression in Response to Mechanical Loading on the Anterior Cruciate Ligament"

2019 Master's Degree Thesis Committee
Unit/Dept: ECU Kinesiology
Role: Committee Member (Jeff Brault, chair; NOTE: Jeff Brault moved to Indiana University**)**
Student: Lewis McCormick III
Thesis: "The Effect of AMP Deaminase 3 on contractile force during fasting-induced atrophy"

MENTORING/ADVISING

RESEARCH MENTORING

*Research Mentoring at ECU To Date (see also **Tables 1** and **2**)*

2025 1) DPT (Doctor of Physical Therapy) Capstone Research Project Students (n=2), GA (n=2); 3) undergraduate researchers [KINE4500 n=1, volunteers n=1]

2024 1) Master's Student thesis advisees (n=1); 2) DPT (Doctor of Physical Therapy) Capstone Research Project Students (n=2), GA (n=2); 3) undergraduate researchers [KINE4991 mentees, n=3, KINE4500 n=1, volunteers n=1 (URCA recipient)]

2023 1) Master's Student thesis advisees (n=2); 2) DPT (Doctor of Physical Therapy) Capstone Research Project Students (n=2); 3) undergraduate researchers (KINE4991 mentees n=5, KINE4500, n=1; volunteers n=1); 4) High School Student in the Brody Honors Medical Research Program (n=1)

2022 1) Master's Student thesis advisee. 2) Master's student mock thesis advisee. 3) 3 undergraduate researchers (2 KINE4991 mentees; and 1 BIOL3504 mentee), 4) 4) High School Student in the Brody Honors Medical Research Program (n=1)

2021 1) DPT Capstone Research Project Student. 2) Honor's College Thesis Project: 1 student working on gene expression (q-rt-PCR) of exercise trained adult and older mice. Student also in directed research course (2 credits), and recipient of Undergraduate Research and Creative Activity (URCA) award, 3) 3 undergraduate researchers in volved in projects related to gene expression using q-RT-PCR, optimizing muscle homogenates to improve dynamic range in lc-ms/ms, and analysis of calcium handling properties of EDL and Soleus muscles. 3) Mock Thesis advisor in KINE6301 Research Seminar for Exercise Physiology Master's Student, who will be doing their thesis in the lab starting in Spring 2022.

2020 1) One DPT Capstone Research Project Student, working on mouse exercise project. 2) Honor's College Thesis Project: two students working on the "Mouse Models of Exercise" projects. 3) Four undergraduate Honor's college researchers taking Directed Studies Research courses: KINE and BIOL , 3 credits (10-15 hours per week of lab work).

2019 3 Undergraduate Honors College Students, research volunteers. They engaged in helping with an older mouse exercise study.

Table 1 Graduate Researchers at ECU

Term	Student	Status	Project
2025 (May 1st)-	Phillip Williamson	GA	TBD
2025-2026	Logan McCollum	DPT Capstone	Effect of HITT on Middle-Aged Mice Muscle
2024-2026	Lucas Tripp	GA + DPT Capstone	Effect of HITT on Middle-Aged Mice Muscle, VWR in Older Male Mice
2023-2024	Anna Webster	DPT Capstone	Influence of Fiber Type and Muscle CSA on Functional Outcomes in C57BL/6 Mice
2022-2024 (fall)	Justin Stephenson	RA + Thesis	Effect of HIIT on Cognitive Function and Brain Health
2022 (summer)-2024 (spring)	Justin McCreary	DPT Capstone + GA	Calcium Handling Across the C57BL/6 Lifespan
2022 (spring)-2023 (spring)	Gabe Gonzalez-Contreras	MS Thesis	Effect of Age on Endothelial Response to HIIT
2021 (fall)	Gabe Gonzalez-Contreras	Mock Thesis	Mock Thesis advisee
2021 (spring)	Christopher Byrd	DPT Capstone + GA	Increasing Physical Activity to Preserve Function in Older Adults: Lessons from Mouse Models of Endurance
2020 (fall)-2021 (fall)	Christopher Byrd	DPT Capstone + GA	Endurance Training to Improve Functional Status in Older and Adult Mice

*In-person research interrupted by the covid19 shutdown

[1] DPT Capstone Research Project and classes: PTHE8906 and 8907

Table 2 Undergraduate Researchers at ECU			
Term	**Student**	**Status/Class**	**Project**
2025 (Spring)	Rusho Moinuddin	KIN4500 (1 cr)	IHC, and Middle-Aged Female Mice HIIT Training
2025 (Spring)	Xavier Silvers	Lab Volunteer	IHC, and Middle-Aged Female Mice HIIT Training
2024 (Fall)	Elijah Parker	KINE4991	Effect of HITT on Middle-Age Male Mouse Muscle
2023-2024 Fall-summer	Ashby Dickerson	Volunteer, URCA Awardee	CFABe Immunohistochemistry
2024 (spring)	Madison Underwood	KINE4991	JHITT open field testing and Immunohistochemistry
2023(Spring)-2024 (Spring)	Hayden Carter	KINE 4991 KINE 4500 KINE 4500	HIIT and Muscle Health: muscle homogenization, immunohistochemistry
2023 (Fall)	Brandon Baucom	KINE 4991	Exercise, and Cognitive Function Analysis
2023 (Fall)	Emily Bowser	KINE 4991	Effect of Exercise on Soleus Fibertype and CSA
2023 (Fall)	Emily Rust	KINE 4991	Effect of Exercise on Soleus Fibertype and CSA
2022 (fall)	Shay Leggett	KINE4991	Exercise Effect on VEGF in the Brain
2022 (spring)	Nathalie Hemingway	BIOL3504	Physiological Relevance of Gene Expression Changes during Aging Associated with Declining Physical Function
2022 (spring)	Wallace Hollowell (Hill)	KINES4991	Does High Intensity Interval Training in Older Mice Restore Age-Related Alterations to Activity Patterns?
2021 (fall)	Adam Schmidt	KINES4991	Optimizing Mass Spectrometry Protein Detection in Aging Mouse Muscle
2021 (fall)	Patrick Kerr	KINES4991	Muscle Calcium Handling Changes in Aging Mice Effecting Muscle Contraction
2021 (fall)	Nathalie Hemingway	BIOL3504	Age-Related Changes in Calcium Handling Gene Expression
2021 (spring)	Nainika Nandigama[1,2]	HLHT4902	Calcium Handling Abnormalities in Aging Muscle Associated with Declining Physical Function
2021 (spring)	Alyssa Fennel[1]	Volunteer	Endurance Training to Improve Functional Status in Older and Adult Mice
2020 (fall)*	Alyssa Fennel[1]	KINE4991	Endurance Training to Preserve Physical Function in Older Mice
2020 (fall)*	Nainika Nandigama[1]	HLHT4901	Endurance Training to Preserve Physical Function in Older Mice

2020 (Spring)*	Alyssa Fennel[1]	KINE4991	"Endurance Exercise in Older Adult Mice"
2020 (Spring)*	Emily Seguin	KINE4991	"Endurance Exercise in Older Adult Mice"
2020 (Spring)*	Anna Seguin	KINE4991	"Endurance Exercise in Older Adult Mice"
2020 (Spring)*	Evin Flinchum	Volunteer	"Endurance Exercise in Older Adult Mice"
2020 (Spring)*	Wallace Hollowell (Hill)	Volunteer	"Endurance Exercise in Older Adult Mice"
2020 (Spring)*	Nainika Nandigama	Volunteer	"Endurance Exercise in Older Adult Mice"
2019 (Fall)	Nainika Nandigama	Volunteer	"Treadmill Training in a Mouse Model"
2019 (Fall)	Emily Seguin	Volunteer	"Voluntary Wheel Running as an Exercise Mimetic"
2019 (Fall)	Anna Seguin	Volunteer	"Treadmill Training in a Mouse Model"

*In-person research interrupted by the covid19 shutdown
[1] Honors College Research Project
[2] Received Undergraduate Research and Creativity Award

Also: 2022 Fall-2023 Spring: Brody High School Medical Research Honors Program; Student: Shadi Darasheh, Role: Research Mentor

Research Mentoring Prior to ECU

2018 MSTAR (Medical Student Training in Aging Research) Student: mentored student on a project that compares the *in vitro* power output of isolated muscles (soleus and EDL) to the muscle fiber type distribution and cellular cross-sectional area; to determine if changes to myosin heavy chain in the cell with age are correlated with reduced contractile velocity and power output at the whole muscle level. This work resulted in an oral and poster presentation at a local meeting..

2016-2017 UTMB Bench Mentor Program: guided a Galveston Ball High School student (female) in a research project involving the culture and differentiation of primary human muscle cells to investigate the effects on protein synthesis rates from knocking down amino acid sensing mTORC1 regulatory genes with siRNA. I trained the student in cell culture technique, Western Blotting, and presentation skills. She is now a student at the University of Texas at Austin.

2015-2016 UTMB Bench Mentor Program: guided a Galveston Ball High School student in a research project concerning the genetic expression of myoregulin and sarcolipin in older and younger adults, after acute bouts of exercise or bedrest. This research is ongoing and was presented in part as a poster at a National meeting. This project involved training the student in RNA isolation, cDNA production, q-RT-PCR, and presentation skills; resulted in our receiving the Team Science Award for excellence in mentoring and scientific achievement. The student is now a first-generation STEM college student at Texas A&M University, and she has received numerous scholarships and awards.

2013-2014 Physical therapy doctoral student, immunohistochemistry and calculation of work/power performed by mice in a resistance training study (resulting in a poster presentation at 2013 GSA meeting in New Orleans, co-authorship in manuscript Graber 2019a, and in a poster presentation at a national meeting in the 2015 APTA Combined Sections Meeting that resulted in her winning a best research award)

2012-2013 Undergraduate student, for honors thesis and for Undergraduate Research Opportunity Project grant, histological and biochemical analysis of the plantaris from resistance trained and control

mice (acknowledgement for data in Graber, 2019a; and used in student's honors thesis). She is now a pharmacist.

2011-2013 Undergraduate on Undergraduate Research Fellowship grant, calcium handling protein differences in muscles of young and old mice (data resulted in poster at local symposium). He has now graduated from medical school and is a resident physician.

2010 Physical therapist lab volunteer, histological analysis of dystrophic mouse models (acknowledgement for data in publication: Chen, et al., 2014).

ACADEMIC ADVISING at ECU

2025 DPT Program Academic Advisor: Four 2nd year (**REDACTED**)

2024 DPT Program Academic Advisor: two 3rd year (**REDACTED**)

2023 DPT Program Academic Advisor: two 3rd year (**REDACTED**)