

Curriculum Vita

Lindsey K. Lepley Ph.D., ATC

WORK ADDRESS

University of Michigan
School of Kinesiology
830 North University Avenue | Office 4150
Ann Arbor, MI 48109
Email: llepley@umich.edu
Phone: 734-764-3081 | Fax: 734-936-1925

EDUCATION AND TRAINING

- 2014-2015 University of Kentucky; Lexington, KY
Postdoctoral training in muscle mechanics and physiology
- 2010-2014 University of Michigan; Ann Arbor, MI
Ph.D. in Kinesiology
Dissertation; *Targeting Quadriceps Weakness Following Anterior Cruciate Ligament Reconstruction*
- 2008-2009 University of Virginia; Charlottesville, VA
M.Ed., in Kinesiology
Thesis; *Effect of Acute Ankle Sprain on Motor Neuron Pool Excitability of Lower Leg Muscles*
- 2004-2008 Grand Valley State University; Allendale, MI
B.S. in Athletic Training

PROFESSIONAL EXPERIENCES

- 2023-pres University of Michigan; Ann Arbor, MI
Associate Professor with Tenure, School of Kinesiology, Athletic Training and Movement Science
- 2019-2023 University of Michigan; Ann Arbor, MI
Assistant Professor, School of Kinesiology, Athletic Training and Movement Science
- 2017-2019 University of Connecticut School of Medicine; Farmington, CT
Assistant Professor, Department of Orthopaedic Surgery
- 2015-2019 University of Connecticut; Storrs, CT
Assistant Professor, Department of Kinesiology, Athletic Training
- 2014-2015 University of Kentucky; Lexington, KY
Postdoctoral Research Fellow, Department of Rehabilitative Sciences
- 2010-2014 University of Michigan; Ann Arbor, MI
Graduate Student Instructor, School of Kinesiology
- 2008-2010 Physical Therapy @ACAC, Charlottesville, VA
Certified Athletic Trainer

FELLOWSHIPS

- 2014-2015 Postdoctoral Fellowship
 Department of Rehabilitation Sciences; University of Kentucky
 Amount: salary + research support
- 2013-2014 Predoctoral Fellowship
 Rackham Graduate School; University of Michigan
 Amount: salary + tuition

HONORS AND AWARDS

- 2025 National Institute of Health, Chair, Special Emphasis Panel, Skeletal Muscle Biology and Exercise Physiology Study Section (SMEP) and Musculoskeletal Rehabilitation Sciences Study Section (MRS)
- 2025 National Athletic Trainers' Association Fellows Distinction
- 2024 National Athletic Trainers' Association Foundation Research Committee Professional Grants Vice Chair
- 2023 Department of Defense, Scientific Reviewer (2023) Chair (2024), USA Medical Research and Development Command, Spinal Cord Injury Research Program
- 2022 National Athletic Trainers' Association Research & Education Foundation Dr. Freddie & Mrs. Hilda Pang Fu New Investigator Award
- 2021 Northwestern University Feinberg School of Medicine Student Nominated Grand Round Research Seminar
- 2020-pres National Athletic Trainers' Association Foundation Research Committee
- 2019-2021 National Institute of Arthritis and Musculoskeletal and Skin Diseases Loan Repayment Award
- 2020-2022 Vice President of Athletic Trainers' Osteoarthritis Consortium
- 2018 National Institute of Health Early Career Reviewer Program Participant
- 2017 Training in Grantsmanship for Rehabilitation Research Workshop Participant
- 2016-2018 National Institute of Arthritis and Musculoskeletal and Skin Diseases Loan Repayment Award
- 2016 National Athletic Trainers' Association Research & Education Foundation David H. Perrin Doctoral Dissertation Award
- 2016 National Athletic Trainers' Association Research & Education Foundation Research/Faculty Mentor Program
- 2015 New England American College of Sports Medicine New Investigator Award
- 2014 University of Kentucky Center for Muscle Biology Postdoctoral Fellow Award
- 2014 University of Michigan Paul A. Hunsicker Memorial Award
- 2013 University of Michigan Shapiro/Malik/Forrest Award
- 2013 American College of Sports Medicine Biomechanics Interest Group Student Travel Award
- 2013 University of Michigan Lucille M. Swift Honor Award
- 2012 American College of Sports Medicine Biomechanics Interest Group Student Research Award
- 2011 National Athletic Trainers' Association Research & Education Foundation Linda Weber Daniel Scholarship
- 2009 University of Virginia David H. Perrin Athletic Training & Sport Medicine Award
- 2009 Physical Therapy@ ACAC Stretching Above and Beyond Award

PEER REVIEWED PUBLICATIONS (in reverse chronological order)

*indicates graduate student under my supervision. **Lepley LK**, indicates corresponding author.

1. *White MS, Garcia AG, Pang Y, *Casey CM, Palmieri-Smith RM, **Lepley LK**. Patellofemoral Cartilage Changes Are Not Associated with Quadriceps Metrics after ACLR with Patellar Tendon Autografts. *Journal of Orthopedic Research*. 2025 May 21. doi: 10.1002/jor.26102. Epub ahead of print.
2. Norte GE, Sherman DA, Rush JL, Ingersoll CD, Bodkin SG, Snyder-Mackler L, Grindstaff TL, Burland JP, Hopkins JT, Blackburn T, Chaput M, Konishi Y, Rice DA, Hart JM, Harkey MS, Zarzycki R, Palmieri-Smith RM, **Lepley LK**, Lepley AS, Pamukoff DN, Park J, Lisee C, Pietrosimone B, Thomas AC, Goetschius J, Tourville TW, Kidgell DJ, Kuenze CM. Advancing Clinical Evaluation and Treatment of Arthrogenic Muscle Inhibition: A Need for Validation and Innovation—Letter to the Editor. *Am J Sports Med*. 2024 Oct;52(12). doi: 10.1177/03635465241272410.
3. *White MS, *Ogier AC, Chenevert TL, *Zucker E, *Stoneback L, Michel CP, Palmieri-Smith RM, **Lepley LK**. Beyond Weakness: Exploring Intramuscular Fat and Quadriceps Atrophy in ACLR Recovery. *Journal of Orthopedic Research*. In press.
4. *White MS, *Mancini LM, *Stoneback L, Palmieri-Smith RM, **Lepley LK**. Chronic Adaptions In Quadricep Fascicle Mechanics Are Related To The Magnitude And Rate of Joint Loading After ACL Reconstruction. *J Appl Biomech*. 2024 Jul 16:1-10. doi:[10.1123/jab.2023-0252](https://doi.org/10.1123/jab.2023-0252). PMID: 39013455
5. *Stoneback L, *Fullano GD, *White MS, **Lepley LK**. Development of a cost-effective chronic EMG patch: metrics of performance and instructions for fabrication. *J Vis Exp*. 2024 Apr 12;(206). doi:[10.3791/66744](https://doi.org/10.3791/66744). PMID: 38682921.
6. Noh SG, Ahn A, *Davi SM, **Lepley LK**, Kwon OS. Quadriceps muscle atrophy after non-invasive anterior cruciate ligament injury: evidence linking to autophagy and mitophagy. *Front Physiol*. 2024 Mar 1;15:1341723. doi:[10.3389/fphys.2024.1341723](https://doi.org/10.3389/fphys.2024.1341723). PMID: 38496299
7. Andrushko J, Carr J, Farthing J, **Lepley L**, Goodall S, Hendy A, Howatson G, DeFreitas J, Grooms D, Zult T, Harput G, Papandreou M, Nosaka K, Carson R, Manca A, Deriu F, Behm, D. The Potential Role Of Cross-Education In Early-Stage Rehabilitation After Anterior Cruciate Ligament Reconstruction. *Br J Sports Med*. 2023 Dec;57(23):1474-1475. doi: 10.1136/bjsports-2023-107456. doi:[10.1136/bjsports-2023-107456](https://doi.org/10.1136/bjsports-2023-107456). PMID: 37821207
8. **Lepley LK**, *Stoneback L, Macpherson PCD, Butterfield TA. Eccentric Exercise as a Potent Prescription for Muscle Weakness After Joint Injury. *Exerc Sport Sci Rev*. 2023 Jul 1;51(3):109-116. doi:[10.1249/JES.0000000000000319](https://doi.org/10.1249/JES.0000000000000319). PMID: 36930954
9. *White MS, Palmieri-Smith RM, **Lepley LK**. Open-sourced semi-automatic program for ultrasound assessments of femoral trochlea cartilage health. *Comput Methods Biomech Biomed Engin*. 2024 Jan-Mar;27(4):531-537. doi:[10.1080/10255842.2023.2189993](https://doi.org/10.1080/10255842.2023.2189993). PMID: 36930954
10. *Davi SM, Ahn A, *White MS, Butterfield TA, Kosmac K, Kwon OS, **Lepley LK**. Long-Lasting Impairments in Quadriceps Mitochondrial Health, Muscle Size, and Phenotypic Composition Are Present After Non-invasive Anterior Cruciate Ligament Injury. *Front Physiol*. 2022 Jan 28;13:805213. doi:[10.3389/fphys.2022.805213](https://doi.org/10.3389/fphys.2022.805213). PMID: 35153832.
11. Hunt ER, *Davi SM, Parise CN, Clark K, Van Pelt DW, Confides AL, Buckholts KA, Jacobs CA, Lattermann C, Dupont-Versteegden EE, Butterfield TA, **Lepley LK**. Temporal disruption of neuromuscular communication and muscle atrophy following noninvasive ACL injury in rats. *J Appl Physiol (1985)*. 2022 Jan 1;132(1):46-57. doi:[10.1152/jappphysiol.00070.2021](https://doi.org/10.1152/jappphysiol.00070.2021). PMID: 34762530.

12. *Davi SM, *Brancati RJ, DiStefano LJ, Lepley AS, **Lepley LK**. Suppressed Quadriceps Fascicle Behavior is Present in the Surgical Limbs of those with a History of ACL reconstruction. *J Biomech*. 2021 Dec 2;129:110808. doi:[10.1016/j.jbiomech.2021.110808](https://doi.org/10.1016/j.jbiomech.2021.110808). PMID: 34666248.
13. Harrison, LJ, **Lepley LK**, Stevens, SL, Coons, JM, Fuller, DK., & Caputo, JL. The Relationship Between Functional Movement and Balance. *Athletic Training & Sports Health Care*. 13(6):e375-e382. doi:[10.3928/19425864-20210401-04](https://doi.org/10.3928/19425864-20210401-04).
14. Lepley AS and **Lepley LK**. Mechanisms of Arthroscopic Muscle Inhibition. *Journal of Sport Rehabilitation*. 2021 Sep 1:1-10. doi:[10.1123/jsr.2020-0479](https://doi.org/10.1123/jsr.2020-0479). PMID: 34470911.
15. Curtis RM, Huggins RA, Benjamin CL, Sekiguchi Y, **Lepley LK**, Heudo-Medina TB, Casa DJ. Factors Associated with Non-Contact Injury in Collegiate Soccer: A 12-team Prospective Study of NCAA Division I Men's and Women's Soccer. *Am J Sports Med*. 2021 Sep;49(11):3076-3087. doi:[10.1177/03635465211036447](https://doi.org/10.1177/03635465211036447). PMID: 34406087.
16. *White MS, Horton WZ, *Burland JP, Seeley MK, **Lepley LK**. The Utility of Functional Data Analyses to Reveal Between-Limbs Asymmetries in Those With a History of Anterior Cruciate Ligament Reconstruction. *J Athl Train*. 2021 Feb 22;56(3):272-9. doi:[10.4085/1062-6050-0081.20](https://doi.org/10.4085/1062-6050-0081.20). PMID: 33618361.
17. *Davi SM, *Woxholdt CK, *Rush JL, Lepley AS, **Lepley LK**. Alterations in Quadriceps Neurologic Complexity after Anterior Cruciate Ligament Reconstruction. *Journal of Sport Rehabilitation*. *J Sport Rehabil*. 2021 Jan 13;30(5):731-736. doi: [10.1123/jsr.2020-0307](https://doi.org/10.1123/jsr.2020-0307). PMID: 33440341.
18. *White MS, *Brancati RJ, **Lepley LK**. Relationship between altered knee kinematics and subchondral bone remodeling in a clinically translational model of ACL injury. *J Orthop Res*. 2022 Jan;40(1):74-86. doi:[10.1002/jor.24943](https://doi.org/10.1002/jor.24943). PMID: 33295680.
19. Rodriguez KM, Garcia SA, Spino C, **Lepley LK**, Pang Y, Wojtys E, Bedi A, Angelini M, Ruffino B, Bolley T, Block C, Kellum J, Swartout A, Palmieri-Smith, RM. Michigan Initiative for Anterior Cruciate Ligament Rehabilitation (MiACLRe): A Protocol for a Randomized Clinical Trial. *Phys Ther*. 2020 Dec 7;100(12):2154-2164. doi:[10.1093/ptj/pzaa169](https://doi.org/10.1093/ptj/pzaa169). PMID: 32939539.
20. **Lepley LK**, *Davi SM, *Burland JP, Lepley AS. Muscle Atrophy after ACL injury: implications for Clinical Practice. *Sports Health*. 2020 Nov/Dec;12(6):579-586. doi:[10.1177/1941738120944256](https://doi.org/10.1177/1941738120944256). PMID: 32866081.
21. *Burland JP, Howard JS, Lepley AS, DiStefano SJ, **Lepley LK**. What Are Our Patients Really Telling Us? Psychological Constructs Associated with Patient-Reported Outcomes After ACLR. *J Athl Train*. 2020 Jul 1;55(7):707-716. doi:[10.4085/1062-6050-120-19](https://doi.org/10.4085/1062-6050-120-19). PMID: 3270211.
22. *Davi SM, Lepley AS, Denegar CR, Edgar CM, DiStefano LJ, **Lepley LK**. Quadriceps Inhibition After Naturally Occurring Patellar Tendon Damage. *J Athl Train*. 2020 Jun 23;55(6):608-614. doi:[10.4085/1062-6050-27-19](https://doi.org/10.4085/1062-6050-27-19). PMID: 3234815.
23. *Rush JL, **Lepley LK**, *Davi SM, Lepley AS. The Immediate Effects of Transcranial Direct Current Stimulation on Quadriceps Muscle Function in Individuals with a History of Anterior Cruciate Ligament Reconstruction. *J Sport Rehabil*. 2020 Nov 1;29(8):1121-1130. doi:[10.1123/jsr.2019-0179](https://doi.org/10.1123/jsr.2019-0179). PMID: 32221043.
24. **Lepley LK**, *Davi SM, Hunt ER, Burland JP, *White MS, *McCormick GY, Butterfield TA. Morphology and Anabolic Response of Skeletal Muscles Subjected to Eccentrically or Concentrically Biased Exercise. *J Athl Train*. 2020 Apr;55(4):336-342. doi:[10.4085/1062-6050-174-19](https://doi.org/10.4085/1062-6050-174-19). PMID: 32196379.

25. *Burland JP, Lepley AS, Cormier ML, DiStefano LJ, **Lepley LK**. Examining the Relationship Between Neuroplasticity and Learned Helplessness after ACLR: Early Versus Late Recovery. *J Sport Rehabil*. 2020 Feb 8;30(1):70-77. doi:[10.1123/jsr.2019-0379](https://doi.org/10.1123/jsr.2019-0379). PMID: 32035415.
26. Lepley AS, Ly MT, Grooms DR, Kinsella-Shaw JM, **Lepley LK**. Corticospinal Tract Structure and Excitability in Patients with Anterior Cruciate Ligament Reconstruction: A DTI and TMS study. *Neuroimage Clin*. 2020;25:102157. doi:[10.1016/j.nicl.2019.102157](https://doi.org/10.1016/j.nicl.2019.102157). PMID: 31901791.
27. *Burland JP, Lepley AS, *Frechette LM, **Lepley LK**. Protracted Alterations in Muscle Activation Strategies and Knee Mechanics in Patients After Anterior Cruciate Ligament Reconstruction. *Knee Surg Sports Traumatol Arthrosc*. 2020 Dec;28(12):3766-3772. doi: [10.1007/s00167-019-05833-4](https://doi.org/10.1007/s00167-019-05833-4). PMID: 31897547.
28. *Butler CR, *Allen KE, DiStefano LJ, **Lepley LK**. Protracted Cardiovascular Impairments After Anterior Cruciate Ligament Reconstruction: A Critically Appraised Topic. *J Sport Rehabil*. 2019 Nov 19;29(5):680-683. doi:[10.1123/jsr.2019-0175](https://doi.org/10.1123/jsr.2019-0175). PMID: 31754079.
29. *Burland JP, Lepley AS, DiStefano LJ, **Lepley LK**. Alterations in Physical and Neurocognitive Wellness Across Recovery After ACLR: A Preliminary Look into Learned Helplessness. *Phys Ther Sport*. 2019 Nov;40:197-207. doi:[10.1016/j.ptsp.2019.09.009](https://doi.org/10.1016/j.ptsp.2019.09.009). PMID: 31590123.
30. Schultz SJ, Schmitz RJ, Cameron KL, Ford KR, Grooms DR, **Lepley LK**, Meyer GD, Pietrosimone B. Anterior Cruciate Ligament Research Retreat VIII Summary Statement: An Update on Injury Risk Identification and Prevention Across the Anterior Cruciate Ligament Injury Continuum March 14-16, 2019, Greensboro, NC. *J Athl Train*. 2019 Sep;54(9):970-984. doi:[10.4085/1062-6050-54.084](https://doi.org/10.4085/1062-6050-54.084). PMID: 31461312.
31. *Burland JP, Lepley AS, DiStefano LJ, **Lepley LK**. No Shortage of Disagreement Between Biomechanical and Clinical Hop Symmetry After Anterior Cruciate Ligament Reconstruction. *Clin Biomech (Bristol, Avon)*. 2019 Aug;68:144-150. doi:[10.1016/j.clinbiomech.2019.05.033](https://doi.org/10.1016/j.clinbiomech.2019.05.033). PMID: 31212209.
32. Palmieri-Smith RM, Strickland MA, **Lepley LK**. Hamstring Muscle Activity after Primary Anterior Cruciate Ligament Reconstruction - A Protective Mechanism in Those Who Do Not Sustain a Secondary Injury? A Preliminary Study. *Sports Health*. 2019 Jul/Aug;11(4):316-323. doi:[10.1177/1941738119852630](https://doi.org/10.1177/1941738119852630). PMID: 31194624.
33. Lepley AS, Grooms DR, *Burland JP, *Davi SM, Kinsella-Shaw JM, **Lepley LK**. Quadriceps Muscle Function Following Anterior Cruciate Ligament Reconstruction: Systemic Differences in Neural and Morphological Characteristics. *Exp Brain Res*. 2019 May;237(5):1267-1278. doi:[10.1007/s00221-019-05499-x](https://doi.org/10.1007/s00221-019-05499-x). PMID: 30852644.
34. *Burland JP, Lepley AS, Cormier M, DiStefano LJ, Arciero A, **Lepley LK**. Learned Helplessness after Anterior Cruciate Ligament Reconstruction: An Altered Neurocognitive State? *Sports Med*. 2019 May;49(5):647-657. doi:[10.1007/s40279-019-01054-4](https://doi.org/10.1007/s40279-019-01054-4). PMID: 30659498.
35. Harrison, LJ, **Lepley, LK**, Fuller, DK, & Caputo, JL. Cross-Over effect of balance training after knee surgery: a pilot study. *Athl. Train. Sports Health Care*. doi:[10.3928/19425864-20181107-01](https://doi.org/10.3928/19425864-20181107-01). 2019;11(5):234-242.
36. Peckham KJ, DiStefano LJ, Root HJ, **Lepley LK**, Scarneo SE, Trigsted SM, Post EG, Brooks MA, McGuine TA, Bell DR. The Influence of Sport Specialization on Landing Error Scoring System in High School Athletes. *Athl. Train. Sports Health Care*. doi:[10.3928/19425864-20180830-02](https://doi.org/10.3928/19425864-20180830-02). 2018;10(6):253-259.
37. **Lepley LK**, Grooms DR, *Burland JP, *Davi SM, *Mosher J, Cornier M, Lepley AS. Eccentric Cross-Exercise After ACL Reconstruction: Novel Case Series to Enhance Neuroplasticity. *Phys Ther Sport*. 2018 Nov;34:55-65. doi:[10.1016/j.ptsp.2018.08.010](https://doi.org/10.1016/j.ptsp.2018.08.010). PMID: 30223234.

38. **Lepley LK**, *Davi SM, Butterfield TA, Shahbazmohamadi, S. JoVE Science Education Database. *Biomedical Engineering*. Visualization of Knee Joint Degeneration after Non-invasive ACL Injury in Rats. JoVE. 2018. <https://www.jove.com/video/10477>
39. Curran MT, **Lepley LK**, Palmieri-Smith RM. Continued Improvements in Quadriceps Strength and Knee Biomechanical Symmetry After Conclusion of Post-Surgical ACL Reconstruction. *J Athl Train*. 2018 Jun;53(6):535-544. doi:[10.4085/1062-6050-478-15](https://doi.org/10.4085/1062-6050-478-15). PMID: 29975571.
40. Blanchard AR, Taylor BA, Thompson PD, **Lepley LK**, White CM, Lamberti LM, Zaleski AL, Pescatello LS. The Influence of Resting Blood Pressure on Muscle Strength in Healthy Adults. *Blood Press Monit*. 2018 Aug;23(4):185-190. doi:[10.1097/MBP.0000000000000325](https://doi.org/10.1097/MBP.0000000000000325). PMID: 29738358.
41. Johnson AK, Palmieri-Smith RM, **Lepley LK**. Contribution of Neural and Morphological Factors to Quadriceps Inter-Limb Asymmetry after Anterior Cruciate Ligament Reconstruction. *J Athl Train*. 2018 Apr;53(4):347-354. doi:[10.4085/1062-6050-463-16](https://doi.org/10.4085/1062-6050-463-16). PMID: 29652169.
42. **Lepley LK**, Lepley AS, Onate JA, Grooms DR. Eccentric Exercise to Enhance Neuromuscular Control. *Sports Health*. 2017 Jul/Aug;9(4):333-340. doi:[10.1177/1941738117710913](https://doi.org/10.1177/1941738117710913). PMID: 28571492.
43. **Lepley LK** and Butterfield TA. Shifting the Current Clinical Perspective: Isolated Eccentric Exercise as an Effective Intervention to Promote the Recovery of Muscle After Injury. *J Sport Rehabil*. 2017 Apr;26(2):122-130. doi:[10.1123/jsr.2017-0008](https://doi.org/10.1123/jsr.2017-0008). PMID: 28414268.
44. Butterfield TA and **Lepley LK**. Eccentric Contractions: They Are Not So 'Odd' Anymore. *J Sport Rehabil*. 2017 Apr;26(2):122-130. doi:[10.1123/jsr.2017-0121](https://doi.org/10.1123/jsr.2017-0121). PMID: 28414268.
45. *Digiacomio JE, Palmieri-Smith RM, Redman JA, **Lepley LK**. Examination of Knee Morphology after Secondary Ipsilateral ACL Injury Compared to Those That Have Not Reinjured: A Preliminary Study. *J Sport Rehabil*. 2018 Jan 1;27(1):73-82. doi:[10.1123/jsr.2016-0093](https://doi.org/10.1123/jsr.2016-0093). PMID: 28095169.
46. **Lepley LK**, McKeon PO, Fitzpatrick SG, Beckemyer CL, Uhl TL, Butterfield TA. Neuromuscular Alterations After Ankle Sprains: An Animal Model to Establish Causal Links After Injury. *J Athl Train*. 2016 Oct;51(10):797-805. doi:[10.4085/1062-6050-51.11.13](https://doi.org/10.4085/1062-6050-51.11.13). PMID: 27831747.
47. **Lepley LK** and Palmieri-Smith RM. Quadriceps Strength, Muscle Activation Failure and Patient-Reported Function at the Time of Return-to-Activity in ACL Reconstructed Patients: A Cross-sectional Study. *J Orthop Sports Phys Ther*. 2015 Dec;45(12):1017-25. doi:[10.2519/jospt.2015.5753](https://doi.org/10.2519/jospt.2015.5753). PMID: 26471854.
48. Thomas AC, **Lepley LK**, Wojtys EM, McLean SG, Palmieri-Smith RM. Effects of Neuromuscular Fatigue and Quadriceps Inhibition and Knee Biomechanics in Individuals post ACL Reconstruction and Healthy Adults. *J Orthop Sports Phys Ther*. 2015 Dec;45(12):1042-50. doi:[10.2519/jospt.2015.5785](https://doi.org/10.2519/jospt.2015.5785). PMID: 26471851.
49. **Lepley LK**. Deficits in Quadriceps Strength and Patient Oriented Outcomes at Return-to-Activity Following ACL Reconstruction: A Review of the Current Literature. *Sports Health*. 2015 May;7(3):231-8. doi:[10.1177/1941738115578112](https://doi.org/10.1177/1941738115578112). PMID: 26131300.
50. **Lepley LK**, Wojtys EM, Palmieri-Smith RM. Combination of Eccentric Exercise and Neuromuscular Electrical Stimulation Post-ACL Reconstruction to Improve Biomechanical Limb Symmetry After Anterior Cruciate Ligament Reconstruction. *Clin Biomech (Bristol, Avon)*. 2015 Aug;30(7):738-47. doi:[10.1016/j.clinbiomech.2015.04.011](https://doi.org/10.1016/j.clinbiomech.2015.04.011). PMID: 25953255.

51. Palmieri-Smith RM and **Lepley LK**. Quadriceps Strength Asymmetry Following ACL Reconstruction Alters Knee Joint Biomechanics and Functional Performance at Time of Return to Activity. *Am J Sports Med.* 2015 Jul;43(7):1662-9. doi:[10.1177/0363546515578252](https://doi.org/10.1177/0363546515578252). PMID: 25883169.
52. **Lepley LK**, Wojtys EM, Palmieri-Smith RM. Combination of Eccentric Exercise and Neuromuscular Electrical Stimulation Post-ACL Reconstruction to Improve Quadriceps Function. *Knee.* 2015 Jun;22(3):270-7. doi:[10.1016/j.knee.2014.11.013](https://doi.org/10.1016/j.knee.2014.11.013). PMID: 25819154.
National Athletic Trainers' Association Foundation 2016 Doctoral Dissertation Award
53. **Lepley LK** and Palmieri-Smith RM. Pre-operative Quadriceps Activation is related to Post-operative Activation, Not Strength, In Patients Post-ACL Reconstruction. *Knee Surg Sports Traumatol Arthrosc.* 2016 Jan;24(1):236-46. doi:[10.1007/s00167-014-3371-0](https://doi.org/10.1007/s00167-014-3371-0). PMID: 25315083.
54. **Lepley LK** and Palmieri-Smith RM. Cross-Education Strength and Activation After Eccentric Exercise. *J Athl Train.* 2014 Sep-Oct;49(5):582-9. doi:[10.4085/1062-6050-49.3.24](https://doi.org/10.4085/1062-6050-49.3.24). PMID: 25117873.
55. **Lepley LK**, Wojtys EM, Palmieri-Smith RM. Does Concomitant Meniscectomy or Meniscal Repair Affect the Recovery of Quadriceps Function Post-ACL Reconstruction? *Knee Surg Sports Traumatol Arthrosc.* 2015 Sep;23(9):2756-61. doi:[10.1007/s00167-014-3093-3](https://doi.org/10.1007/s00167-014-3093-3). PMID: 24906435.
56. **Lepley LK** and Palmieri-Smith RM. Effect of Eccentric Strengthening After Anterior Cruciate Ligament Reconstruction on Quadriceps Strength. *J Sport Rehabil.* 2013 May;22(2):150-6. doi:[10.1123/jsr.22.2.150](https://doi.org/10.1123/jsr.22.2.150). PMID: 23238230.
57. **Lepley LK**, Thomas AC, McLean SG, Palmieri-Smith RM. Fatigue's Lack of Effect on Thigh-Muscle Activity in Anterior Cruciate Ligament-Reconstructed Patients During a Dynamic-Landing Task. *J Sport Rehabil.* 2013 May;22(2):83-92. doi:[10.1123/jsr.22.2.83](https://doi.org/10.1123/jsr.22.2.83). PMID: 23069653.
58. **Klykken LW**, Pietrosimone BG, Kim KM, Ingersoll CD, Hertel J. Motor-Neuron Pool Excitability of the Lower Leg Muscles After Acute Lateral Ankle Sprain. *J Athl Train.* 2011 May-Jun;46(3):263-9. doi: [10.4085/1062-6050-46.3.263](https://doi.org/10.4085/1062-6050-46.3.263). Erratum in: *J Athl Train.* 2014 Mar-Apr;49(2):283. PMID: 21669095.

Published Invited / Non-Refereed Manuscripts

1. Casa DJ, Hosokawa Y, Huggins RA, Stearns RL, Adams WM, Beltz EM, Belval LN, Curtis RM, DiStefano LJ, Eason CM, Fortunati AR, Iannicelli JP, Katch RK, Lepley AS, **Lepley LK**, Mazerolle SM, Pike AM, Rafeldt DA, Root HJ, Scarneo SE, Vandermark LW. (2016, January) "Concern Emerges About Proper Implementation of Consensus Statement Guidelines." [Letter to the Editor] *NATA News*, 8-9.

Manuscripts Submitted for Publication

Manuscripts In Preparation

1. *Stoneback L, Naaz S, Macpherson PCD, *Vaikutis L, *Ali D, **Lepley LK**. Quantifying the Direct Effect of ACL Injury on Quadriceps Excitation and Peripheral Neural Function in a Preclinical Model of Non-Invasive ACL Injury. In preparation.

MEDIA INTERVIEWS (in reverse chronological order)

1. Want to Get Stronger and Avoid Injury? Try This. – New York Times – June 4, 2025 ([link](#))
2. Supporting NIH Early-Stage Investigators: Enhancing Diverse Perspectives to Address Society’s Health Needs – Panelist – University of Michigan – December 9, 2024 ([link](#))
3. Eccentric Exercise as a Potent Prescription for Muscle Weakness after Joint Injury – Active Voice – American College of Sports Medicine – July 11 2023 ([link](#))
4. Talking about Addressing Central and Peripheral Factors in the Clinic –Sports Performance Special Interest Group – American Academy of Sports Physical Therapist – April 7 2022 ([link](#))
5. Quad (Dys)function After ACL Injury – ACL Study Day – South Coast Seminars – February 16 2022 ([link](#))
6. Women Scholars in ACL Rehabilitation – Journal of Athletic Training – March 29 2021 ([link](#))
7. Looking Beyond the Ligament Muscle and Nervous System Contributions to Joint Health After ACL Injury – ACL Study Day – South Coast Seminars – March 24 2021 ([link](#))
8. Walk this way: Link Established Between Altered Gait After ACL injury and Knee Osteoarthritis – Michigan News – January 2021 ([link](#))
9. Eccentric Exercise After Joint Injury: A Basic Science Approach – Journal of Athletic Training – April 2020 ([link](#))
10. More than a Knee Injury: ACL tears Cause Harmful Changes in Our Brain Structure – Michigan News – January 2020 ([link](#))
11. New Grant to Evaluate Muscle Extension Exercise in ACL Rehab – UCONN Today – June 2018 ([link](#))
12. Putting Prehab to the Test Highlights Inconsistencies - Lower Extremity Review – March 2017 ([link](#))

CONFERENCES PROCEEDINGS AND ABSTRACTS (in reverse chronological order)

*indicates graduate student under my supervision. **Lepley LK**, indicates corresponding author.

1. White MS*, Palmieri-Smith RM, **Lepley LK**. Quadriceps Atrophy Without Hamstrings Adaptations in Individuals following ACLR via Patellar Tendon Autograft. Submitted for consideration. American Society of Biomechanics. Pittsburgh, PA. August 2025
2. Adidharma W, Yucheng T, Burke KL, Kodali R, *Stoneback L, Nicovic M, Rastegar A, Che-Hsiung L, Kuperus HR, Jeevaraj J, Gillespie RB, Cederna PS, **Lepley LK**, **Kemp SWP**. The Muscle Cuff Regenerative Peripheral Nerve Interface (MC-RPNI) for the Accurate Detection of Motor Intention. Submitted for consideration. American Society for Surgery of the Hand Meeting. Vancouver, CA. October 2025.
3. *Stoneback L, Macpherson PM, Tian Y, Kemp SWP, **Lepley LK**. Quantifying the Effect of ACL Injury on Compound Unit Action Potentials. Isokinetic Medical Group Football Medicine Conference. Madrid, ES. May 2025.
4. Adidharma W, Yucheng T, Kodali R, *Stoneback L, Nicovic M, Jeevaraj J, Jillala RR, Cederna PS, **Lepley LK**, **Kemp SWP**. Physiologic Sensorimotor Neural Signaling With The Composite Regenerative Peripheral Nerve Interface (C-RPNI) In A Rodent Model. Podium presentation for the Plastic Surgery Research Counsel. St. Louis, MO. May 2025.
5. *Stoneback L, Macpherson PM, Ali D, Vaikutis L, **Lepley LK**. Quantifying the Direct Effect of ACL Injury on the Neuromuscular Junction: Evidence for Synaptic Connectivity. Podium presentation for the American Physical Therapy Association Combined Sections Meeting. Houston, TX. February 2025.
6. Adidharma W, Yucheng T, Kodali R, *Stoneback L, Nicovic M, Jeevaraj J, Jillala RR, Cederna PS, **Lepley LK**, **Kemp SWP**. The Composite Regenerative Peripheral Nerve Interface (C-RPNI) Facilitates Sensorimotor Signaling During Volitional Ambulation. Podium presentation for the American Society for Peripheral Nerve Annual Meeting. Waikoloa, HI. January 2025.
7. *White MS, Garcia SA, Pang Y, *Casey CM, Palmieri-Smith RM and **Lepley LK**. Alterations in Patellofemoral Cartilage Composition are Not Associated with Quadriceps Strength or Size following ACL Reconstruction. Poster presentation for the American Society of Biomechanics. Madison, WI. August 2024.
8. *Stoneback L, Naaz S, Macpherson PM, **Lepley LK**. Quantifying the Direct Effect of ACL Injury on Quadriceps Muscle Activity: A Prospective Preclinical Model. Poster presentation for the American Physical Therapy Association Combined Sections Meeting. Boston, MA. February 2024.
9. *White MS, *Mancini LM, *Stoneback L, Palmieri-Smith RM, **Lepley LK**. Chronic Adaptions In Quadricep Fascicle Mechanics Are Related To The Magnitude And Rate of Joint Loading After ACL Reconstruction. Poster presentation for the Orthopedic Research Society Annual Meeting. Long Beach, CA. February 2024.
10. *White MS, Ogier AC, Chenevert TL, *Zucker E, *Stoneback L, Michel CP, Palmieri-Smith RM, **Lepley LK**. Intramuscular Fat Infiltration Following ACL Reconstruction. Poster presentation for the Orthopedic Research Society. Long Beach, CA. February 2024.
11. *Stoneback L, *Fullano GD, *White MS, Naaz S, **Lepley LK**. Development of a low-cost biocompatible EMG electrode: metrics of performance and instructions for fabrication. Poster presentation for the American Society of Biomechanics. Knoxville, TN. August 2023.
12. *White MS, Palmieri-Smith RM, **Lepley LK**. Open-Sourced Semi-Automatic Program for Ultrasound Assessments of Femoral Trochlea Cartilage Thickness. Podium presentation for the ACL Research Retreat IX, High Point, NC. March 2022.

13. *Davi SM, Ahram A, *White MS, Butterfield TA, Kosmac K, Kwon OS and **Lepley LK**. Long-lasting Impairments in Quadriceps Mitochondrial Health, Muscle Size and Phenotypic Composition are Present After Non-Invasive Anterior Cruciate Ligament Injury. Podium presentation for the ACL Research Retreat IX, High Point, NC. March 2022.
14. Lepley AS, Ly MT, Grooms DR, Kinsella-Shaw JM, **Lepley LK**. Altered corticospinal tract structure and excitability in patients with anterior cruciate ligament reconstruction. Poster presentation for the American College of Sports Medicine Annual Meeting, San Francisco, CA. May 2020.
15. Hunt ER, *Davi SM, Van Pelt DW, Lattermann C, Dupont-Versteegden EE, Butterfield TA, **Lepley LK**. Early Physiological Changes to the Vastus Lateralis After Non-Invasive Anterior Cruciate Ligament Injury. Poster presentation for the American College of Sports Medicine Annual Meeting, San Francisco, CA. May 2020.
16. Harrison LJ, **Lepley LK**, Stevens SL, Fuller DK, Coons JM, Caputo JL. The Relationship Between Functional Movement and Balance. Poster presentation for the American College of Sports Medicine Annual Meeting, San Francisco, CA. May 2020.
17. Kwon OS, *Davi SM, *White MS, **Lepley LK**. The Role of Mitochondrial-derived Reactive Oxygen Species in Non-Invasive Anterior Cruciate Ligament Injury. Accepted for Experimental Biology. April 2020. Conference cancelled due to COVID-19.
18. *White MS, *Davi SM, *Brancati RJ, **Lepley LK**. Alterations in Gait and Knee Joint Alignment Substantiate New PTOA Rodent Model of ACL Injury. Poster presentation for the Orthopaedic Research Society Annual Meeting. Phoenix, AZ. February 2020.
19. **Lepley LK**, *White MS, *Davi SM, Lepley AS, *Brancati RJ. Novel Pre-clinical Model of Post-traumatic Osteoarthritis Demonstrates Unicompartamental Declines in Trabecular Bone Volume. Podium presentation for the Orthopaedic Research Society Annual Meeting. Phoenix, AZ. February 2020. **Preclinical Model Section Award Finalist**
20. *Davi SM, *Brancati RJ, **Lepley LK**. Characterizing Abnormalities in Dynamic Quadriceps' Function Following Anterior Cruciate Ligament Reconstruction. Poster presentation for the Orthopaedic Research Society Annual Meeting. Phoenix, AZ. February 2020.
21. Beltz EM, Denegar CR, *Burland JP, Huggins RA, **Lepley LK**, DiStefano LJ. The Relationship between Training Load and Neuromuscular Control in Adolescent Female Basketball Athletes. Podium presentation for the National Athletic Trainers' Association Annual Meeting, Las Vegas, NV. June 2019.
22. *Rush JL, **Lepley LK**, *Davi SM, Lepley AS. The Effects of Transcranial Direct Current Stimulation on Quadriceps Neural Activity After Anterior Cruciate Ligament Reconstruction. Podium presentation for the National Athletic Trainers' Association Annual Meeting, Las Vegas, NV. June 2019.
23. Lepley AS, Grooms DR, *Burland JP, *Davi SM, Kinsella-Shaw JM, **Lepley LK**. Systemic Quadriceps Muscle Failure Following ACL Reconstruction: Neural and Morphological Considerations. Podium presentation for the National Athletic Trainers' Association Annual Meeting, Las Vegas, NV. June 2019.
24. *Burland JP, Lepley AS, *Davi SM, DiStefano LJ, **Lepley LK**. How Does it all Measure Up? Interrelationships Between Biomechanical, Clinical Symmetry and Self-Reported Function after ACLR. Podium presentation for the National Athletic Trainers' Association Annual Meeting, Las Vegas, NV. June 2019.

25. *Butler CR, Curtis RM, Huggins RA, Benjamin CL, Sekiguchi Y, **Lepley LK**, Casa DJ. NCAA Preseason Demonstrates Greatest Impact on Heart Rate Variability, Training Load and Sleep in Men's Soccer. Poster presentation for the American College of Sports Medicine Annual Meeting. Orlando, FL. May 2019.
26. Lepley AS, Froeling M, *Davi SM, *Burland JP, **Lepley LK**. Quadriceps Muscle Structure Following ACL Reconstruction: Influence on Muscle Weakness. Podium presentation for the ACL Research Retreat VIII, Greensboro, NC. March 2019.
27. **Lepley LK**, Froeling M, *Davi SM, *Burland JP, Curtis RM, Lepley AS. Investigating the Neural-Morphologic Link on Quadriceps Strength After ACLR. Podium presentation for the ACL Research Retreat VIII, Greensboro, NC. March 2019.
28. *White MS, *Burland JP, *Davi SM, Lepley AS, **Lepley LK**. Hidden Asymmetries in ACLR Patients Who Pass Triple Hop Test Following ACLR. Podium presentation for the ACL Research Retreat VIII, Greensboro, NC. March 2019.
29. *Burland JP, Howard JS, Lepley AS, DiStefano LJ, **Lepley LK**. What Are Our Patients Really Telling Us? Psychological Constructs Associated with Patient-Reported Outcomes after ACLR. Podium presentation for the ACL Research Retreat VIII, Greensboro, NC. March 2019.
30. *Davi SM, Lepley AS, *Burland JP, Curtis RM, **Lepley LK**. The Mediated Link: Evaluating Quadriceps Neuromechanics and Dynamic Muscle Function After ACLR. Podium presentation for the ACL Research Retreat VIII, Greensboro, NC. March 2019.
31. **Lepley LK**, Garibay EJ, Giampetruzzi NG, Milewski MD, Lloyd JR, Supernant D, Öunpuu S. Single Leg Long Hop Distance, Strength, and Landing Mechanics Symmetry Following ACL Reconstruction in Adolescent Athletes. Poster presentation for the Combined Sections Meeting. Washington D.C. January 2019.
32. Harrison, LJ, **Lepley, LK**, Fuller, DK, & Caputo, JL. The Relationship between Functional Movement and Balance, at the Health and Human Performance Research Symposium, University of Houston, Houston, TX. October 2018.
33. Lepley AS, Grooms DR, *Burland JP, *Davi SM, **Lepley LK**. Underlying Contributors to Quadriceps Strength in Anterior Cruciate Ligament Reconstructed Patients: Morphological and Neurological Adaptations. National Athletic Trainers' Association Annual Meeting. New Orleans, LA. June 2018.
34. *Burland JP, **Lepley LK**, *Davi SM, Lepley AS. Quadriceps Cross-Sectional Area, Not Neural Activity, is Associated with Improved Self-Reported Function after ACLR. Poster presentation for the National Athletic Trainers' Association Annual Meeting. New Orleans, LA. June 2018.
35. *Davi SM, Lepley AS, *Burland JP, Earp JE, **Lepley LK**. Elucidating the Underlying Architectural and Neural Mechanisms of Strength Loss that Influence Patient Reported Outcomes after ACL Reconstruction. Podium presentation for the National Athletic Trainers' Association Annual Meeting. New Orleans, LA. June 2018.
36. **Lepley LK**, *Davi SM, *Woxholdt CK, *Burland JP, Lepley AS. Investigating the Underlying Neurological Factors that Regulate Quadriceps Muscle Activation after ACL Reconstruction. Podium presentation for the National Athletic Trainers' Association Annual Meeting. New Orleans, LA. June 2018.
37. Lepley AS, **Lepley LK**, *Burland JP, *Davi SM, Grooms DR. Association Between Motor Cortex Activation and Excitability of the Quadriceps: An fMRI and TMS Study. Poster presentation for the American College of Sports Medicine Annual Meeting. Minneapolis, MN. June 2018.

38. *Davi SM, Lepley AS, *Burland JP, **Lepley LK**. Examining the Relationships Between the Mode of Quadriceps Contraction and Clinical Outcomes after ACL Reconstruction. Poster presentation for the American College of Sports Medicine Annual Meeting. Minneapolis, MN. May 2018.
39. *Burland JP, **Lepley LK**, DiStefano LJ, *Davi SM, Lepley AS. Fear of Reinjury is Associated with Knee Biomechanics During Single Limb Landing after ACL Reconstruction. Poster presentation for the American College of Sports Medicine Annual Meeting. Minneapolis, MN. May 2018.
40. **Lepley LK**, *Burland JP, *Davi SM, Lepley AS. Lack of Association Between Clinical Measures of Symmetry and Knee Loading Mechanics After ACL Reconstruction. Poster presentation for the American College of Sports Medicine Annual Meeting, Minneapolis. MN. May 2018.
41. Harrison, LJ, **Lepley, LK**, Fuller, DK, & Caputo, JL. Cross-Over Effect of Balance Training After Knee Surgery: A Pilot Study. Poster presentation for the Annual Meeting of the Southeast Chapter of the American College of Sports Medicine. Chattanooga, TN. March 2018.
42. **Lepley LK**, Garibay EJ, Milewski MD, Lloyd JR, Giampetruzzi NG, Supernant D, Nissen CW, Öunpuu S. Single Leg Hop Distance, Strength and, Landing Mechanics Symmetry Following ACL Reconstruction in Adolescent Athletes. Poster presentation for the Pediatric Research in Sports Medicine Society. Fort Lauderdale, FL January 2018.
43. **Lepley LK**, Garibay EJ, Öunpuu S, Lloyd JR, Giampetruzzi NG, Supernant DB, Nissen CW, Milewski MD. Adolescent Strength Recovery After ACL Reconstruction: Time to Reconsider Return to Sport Guidelines? Poster presentation for the Pediatric Research in Sports Medicine Society. Fort Lauderdale, FL January 2018.
44. *Davi SM, Lepley AS, Denegar CR, Aerni G, DiStefano LJ, **Lepley LK**. Influence of Patellar Tendinopathy Compared With Anterior Knee Pain on Quadriceps Arthrogenic Muscle Inhibition. Podium presentation for the National Athletic Trainers' Association Annual Meeting and Symposium. Houston, TX. June 2017.
45. **Lepley LK**, *Digiacomio JE, Redman JA, Palmieri-Smith RM. Knee Morphology After Secondary Ipsilateral ACL Injury Compared to Those that Have Not Reinjured. Poster presentation for the American College of Sport Medicine Annual Meeting. Denver, CO. June 2017.
46. Curran MT, **Lepley LK**, Palmieri-Smith RM. Continued Improvements in Quadriceps Strength and Knee Biomechanical Symmetry over 18 months: Time to Reconsider the 6-Month Return-to-Activity Guidelines? Podium presentation for the National Athletic Trainers' Association Annual Meeting and Symposium. Baltimore, MD. June 2016.
47. **Lepley LK**, McKeon PO, Fitzpatrick SG, Beckemyer CL, Uhl TL, Butterfield TA. Ankle Health Regulates Lower Extremity Muscle Behavior and Coordination in Freely Walking Rats. Poster presentation for the American College of Sport Medicine Annual Meeting. Boston, MA. June 2016.
48. Johnson AK, **Lepley LK**, Palmieri-Smith RM. Underlying Factors of Neural Activity that Regulate Torque Development after Anterior Cruciate Ligament Reconstruction. Poster presentation for the American College of Sport Medicine Annual Meeting. Boston, MA. June 2016.
49. Grooms DR, **Lepley LK**, Onate JA. Eccentric Exercise as a Mechanism to Address Neuroplasticity Associated with ACL Reconstruction: An Exploratory Study. Podium presentation for the Great Lakes Athletic Trainers Association Annual Meeting and Symposium. Chicago, IL. March 2016.
50. Johnson AK, **Lepley LK**, Palmieri-Smith RM. Lower Extremity Torque Production Abilities after Anterior Cruciate Ligament Rehabilitation. Poster presentation for the University of Michigan's 2015 Clinical and Translational Research Mentoring Forum. Ann Arbor, MI. November 2015.

51. **Lepley LK**, Wojtys EM, Palmieri-Smith RM. Combination of Eccentric Exercise and Neuromuscular Electrical Stimulation to Improve Knee Mechanics Post-ACL Reconstruction. Podium presentation for the National Athletic Trainers' Association Annual Meeting and Symposium. St Louis, MO. June 2015.
52. **Lepley LK**, Palmieri-Smith RM. Quadriceps Strength, Not Volitional Muscle Activation, is the Primary Contributor to Physical Function Post-ACL Reconstruction. Poster presentation for the American College of Sport Medicine Annual Meeting. San Diego, CA. May 2015.
53. **Lepley LK**, Strickland MA, Palmieri-Smith RM. Alterations in Hamstring Activity at Return-to-Play Post-ACLr: Protective Mechanism Among Patients that Do Not Reinjure? Podium presentation for the ACL Research Retreat VII. Greensboro, NC. March 2015.
54. **Lepley LK**, Palmieri-Smith RM. Quadriceps Strength, Not Volitional Muscle Activation, is the Primary Contributor to Physical Function Post-ACL Reconstruction. Center for Muscle Biology Research Day. Lexington, KY. October 2014. **1st Place Poster- Postdoctoral Fellow Award**
55. **Lepley LK**, Wojtys EM, Palmieri-Smith RM. Combination of Eccentric Exercise and Neuromuscular Electrical Stimulation to Improve Quadriceps Function Post-ACL Reconstruction. Podium presentation for the National Athletic Trainers' Association Annual Meeting and Symposium. Indianapolis, IN. June 2014. **Doctoral Student Oral Award Finalist**
56. **Lepley LK** and Palmieri-Smith RM. Concomitant Meniscectomy or Meniscal Repair Does Not Affect the Recovery of Quadriceps Function Post-ACL Reconstruction. Poster presentation for the American College of Sport Medicine Annual Meeting. Orlando, FL. May 2014.
57. **Lepley LK** and Palmieri-Smith RM. Preoperative Quadriceps Activation is Associated with Postoperative Activation, Not Strength, Following Anterior Cruciate Ligament Reconstruction. Podium presentation for the National Athletic Trainers' Association Annual Meeting and Symposium. Las Vegas, NV. June 2013.
58. **Lepley LK** and Palmieri-Smith RM. Quadriceps Strength, Not Activation, Improves in the Unexercised Limb Following a Single-Legged Eccentric Exercise Program. Poster presentation for the American College of Sport Medicine Annual Meeting. Indianapolis, IN. May 2013.
59. **Lepley LK** and Palmieri-Smith RM. Quadriceps Strength is Associated with Sagittal Plane Knee Angles and Moments During a Dynamic Landing Following Anterior Cruciate Ligament Reconstruction. Poster presentation for the National Athletic Trainers' Association Annual Meeting and Symposium. St. Louis, MO. June 2012.
60. **Lepley LK** and Palmieri-Smith RM. Pre-operative Quadriceps Strength is Associated with Post-operative Quadriceps Strength Following Anterior Cruciate Ligament Reconstruction. Poster presentation for the American College of Sport Medicine Annual Meeting. San Francisco, CA. May 2012.
61. **Klykken LW**, Thomas AC, McLean SG, Palmieri-Smith RM. Effects of Neuromuscular Fatigue on Knee Biomechanics and Muscle Activity in ACL Reconstructed Patients. Poster presentation for the National Athletic Trainers' Association Annual Meeting and Symposium. New Orleans, LA. June 2011.
62. **Klykken LW**, Pietrosimone BG, Kim KM, Ingersoll CD, Hertel J. Effect of Acute Lateral Ankle Sprain on Motor Neuron Pool Excitability of the Soleus, Anterior Tibialis, Peroneus Longus. Podium presentation for the National Athletic Trainers' Association Annual Meeting and Symposium. Philadelphia, PA. June 2010.

INVITED LECTURES AND SYMPOSIUM PRESENTATIONS

1. **Lepley LK.** Lost in Translation: How a Change in Central Motor Drive Compromises Muscle. Isokinetic Medical Group Football Medicine Conference. Madrid, ES. May 4, 2025.
2. **Lepley LK.** New Insights to Treating Sick Muscles After ACL Injury. Department of Health and Kinesiology. Purdue University. West Lafayette, IN. March 5, 2025.
3. **Lepley LK.** Treating Sick Muscles after ACL Injury: A Bench to Bedside Approach. Great Plans IDeA-DTR Seminar Series. University of Nebraska Medical Center. Omaha, NE. November 14, 2024. ([link](#))
4. **Lepley LK.** Re-Evaluating Classic Beliefs About Eccentric Exercise. European College of Sport Science Conference. Glasgow, UK. July 03, 2024.
5. **Lepley LK.** Translating Basic Science to Elite Performance for Muscle Recovery. Isokinetic Medical Group Football Medicine Conference. Madrid, ES. May 25, 2024.
6. **Lepley LK.** Treating Sick Muscles After ACL Injury. Department of Kinesiology and Integrative Physiology at Michigan Technological University. Houghton, MI. April 12, 2024.
7. **Lepley LK.** Mechanisms Associated with Muscle Strength, Activation and Structure following Traumatic Joint Injury. United States Olympic & Paralympic Committee Lecture Series. Colorado Springs, CO. March 7, 2024.
8. Zarzycki R, Grooms D, **Lepley LK.** The Tangled Web We Treat: Navigating Complex Relationships between Brain and Muscle After ACL Injury. American Physical Therapy Association Combined Sections Meeting. Boston, MA. February 15, 2024.
9. **Lepley LK.** Treating Sick Muscle After ACL Injury: Critical Concepts for the Clinician. University of California. Los Angeles, Musculoskeletal Seminar Series. Sponsored by NIH training grants in Regenerative Medicine (AR059033), Translational Research (TDK104687) and Advanced Translational Science (UL1TR0001811). Los Angeles, CA. May 17, 2023.
10. **Lepley LK.** Translating the Science Into the Clinic: Treating Sick Muscles after ACL Injury. Saskatchewan Athletic Therapists Association. Saskatchewan, CA. May 6, 2023.
11. **Lepley LK.** Critical Concepts to Treating Sick Muscles After ACL Injury. University of Central Florida Institute for Exercise Physiology and Rehabilitation Science Conference. Orlando, FL. January 28, 2023.
12. **Lepley LK.** New Insights to Treating Sick Muscles After ACL Injury. ACL Research Mini Symposium. MedSport. Ann Arbor, MI. January 26, 2023.
13. **Lepley LK.** Dr. Freddie & Mrs. Hilda Pang Fu New Investigator Award. National Athletic Trainers' Association Annual Meeting and Symposium. Philadelphia, PA. June 30, 2022.
14. **Lepley LK** and Lam K. National Athletic Trainers' Association Research & Education Foundation Inaugural Research Grant Workshop. National Athletic Trainers' Association Annual Meeting and Symposium. Philadelphia, PA . June 30, 2022.
15. **Lepley LK.** Treating Sick Muscles After ACL Injury: Translating the Science Into the Clinic. National Athletic Trainers' Association Annual Meeting and Symposium. Philadelphia, PA. June 29, 2022.

16. **Lepley LK** and Palmieri-Smith RM. Treating the Mechanistic Determinants of Muscle Weakness After ACL Injury: Translating the Science Into the Clinic. American College of Sport Medicine Annual Meeting. Biomechanics Interest Group Sponsored Lecture. San Diego, CA. June 4, 2022.
17. **Lepley LK**. Developing a Personalized Strength Training Program. World Federation of Athletic Training & Therapy World Congress Meeting. National Athletic Trainers' Association Sponsored Round Table. Winnipeg, Manitoba, CA. May 7, 2022.
18. **Lepley LK**. Treating Sick Muscles After ACL Injury: Translating the Science Into the Clinic. World Federation of Athletic Training & Therapy World Congress Meeting. National Athletic Trainers' Association Sponsored Lecture. Winnipeg, Manitoba, CA. May 7, 2022.
19. **Lepley LK**. Untangling the Origins of Quadriceps (Dys)Function After ACL Injury. American Medical Society for Sports Medicine Annual Meeting. Austin, TX. April 11, 2022.
20. Lepley AS and **Lepley LK**. Critical Concepts for Treating Joint Injury: A Neural & Morphological Perspective. Department of Health and Exercise Science SHARE Seminar Series. Appalachian State University. Boone, NC. March 16, 2022.
21. **Lepley LK**. The AT & Research: Lessons Learned While Navigating the Grantsmanship Landscape. National Athletic Trainers' Association Timely Topic. Virtual. September 22, 2021.
22. **Lepley LK**. Treating Sick Muscle after ACL Injury: Translating the Science into the Clinic. Annual Student-Nominated Grand Rounds Research Seminar for the Department of Physical Therapy and Human Movement Sciences. Northwestern University Feinberg School of Medicine. Chicago, IL. July 21, 2021.
23. **Lepley LK**. Treating Muscle Dysfunction after ACL Injury: New Insights into a Clinical Challenge. Orthopaedic Research Laboratory Seminar. University of Michigan. Ann Arbor, MI. June 22, 2021.
24. **Lepley LK**. Challenging Clinical Misconceptions about Eccentric Exercise & Injury. Universidad de los Andes. Santiago, CL. June 8, 2021. https://youtu.be/FM_Sgo4aEP8
25. **Lepley LK**. Missing Links in Musculoskeletal Rehabilitation: Opportunities for Connectivity with CPFRC. Chronic Pain and Fatigue Research Center. University of Michigan. Ann Arbor, MI. May 18, 2021.
26. **Lepley LK**. Following the Data: An Evidence-Based Journey to Treating Muscle Weakness After Joint Injury. Musculoskeletal Research in Progress Seminar via the Michigan Integrative Musculoskeletal Health Core Center. University of Michigan. Ann Arbor, MI. January 20, 2021.
27. **Lepley LK**. Mechanisms of Quadriceps Neuromuscular Dysfunction Following Anterior Cruciate Ligament Injury: Implications for Future Clinical Trials. MSK HS&CR Group Meeting via the Department of Orthopedic Surgery. University of Michigan. Ann Arbor, MI. December 11, 2020.
28. **Lepley LK**. Positive Results of Negative Work: Translating the Science of Eccentric Exercise into the Clinic. Great Lakes Athletic Trainers Association. Wheeling, IL. March 12, 2020.
29. **Lepley LK**. Optimizing Exercise Prescription After Joint Injury: Challenging Existing Paradigms. Center for Exercise Research. University of Michigan. Ann Arbor, MI. February 28, 2020.
30. **Lepley LK**. The Positive Results of Negative Work: Translating the Science of Eccentric Exercise. Ohio Musculoskeletal and Neurological Institute Seminar Series. Ohio University. Athens, OH. September 4, 2019.

31. **Lepley LK.** Lengthening Your Perspective: Using Eccentric Exercise to Treat Neural and Morphological Deficits After Injury. National Athletic Trainers' Association Annual Meeting and Symposium. Las Vegas, NV. June 27, 2019.
32. **Lepley LK** and Blackburn JT. Not So Hidden Burden of PTOA: Risk Factors and Opportunities for Intervention. Athletic Trainers' Osteoarthritis Consortium Annual Meeting. Las Vegas, NV. June 24, 2019.
33. Lepley AS, Burland JP, **Lepley LK.** Mind Games: The Clinical Implications of ACL injury on Neurological Function. New England American College of Sport Medicine Annual Meeting. Providence, RI. November 8, 2018.
34. **Lepley LK.** We're Not Gonna Take It: Rebelling Against the Current Prescriptive Approach after ACLR. University of Kentucky, Division of Rehabilitation Science, Muscle Biology Forum. Lexington, KY. October 31, 2018.
35. **Lepley LK.** Who we are, What we do, Where we're going: Sport Optimization and Rehabilitation (SOAR) Lab. University of Connecticut Health Center Musculoskeletal Institute. Farmington, CT. September 21, 2018.
36. Devaney L, Ingriselli J, **Lepley LK.** Combining Manual Therapy and Eccentric Exercise to Promote Lengthening in Athletes with Impaired Mobility. National Athletic Trainers' Association Annual Meeting and Symposium. New Orleans, LA. June 26, 2018.
37. **Lepley LK.** It's Morphin Time: Combating Abnormal Developments in Muscle Morphology After Joint Injury. University of Connecticut, Grand Rounds. Storrs, CT. March 23, 2018.
38. **Lepley LK** and Pietrosimone BG. Targeted Interventions to Improve Skeletal Muscle Function after ACL Reconstruction. University of Virginia 2017 Art & Science Sports Medicine Conference. Charlottesville, VA. June 08, 2017.
39. **Lepley LK.** It's Morphing Time: Combating Abnormal Developments in Muscle Morphology that Influence Recovery after Injury. University of Virginia 2017 Art & Science Sports Medicine Conference. Charlottesville, VA. June 08, 2017.
40. **Lepley LK.** Bench to Bedside: Restoring Muscle Function After Joint Injury. University of Connecticut, Biomedical Engineering Seminar. Storrs, CT. February 24, 2017.
41. **Lepley LK.** Challenging the Traditional Mode of Exercise Prescription After ACLR. Connecticut Children's Medical Center. Farmington, CT. January 05, 2016
42. **Lepley LK.** Cross-Exercise: Contralateral Limb Exercise to Promote Recovery of Neuromuscular Function in the Injured Limb. University of Connecticut, Preceptor Training. Storrs, CT. December 12, 2016. Approved Evidence Based Practice program by the Board of Certification.
43. **Lepley LK.** Cross-exercise: Alternative Rehabilitation Approach to Promote Immediate Recovery of Neurological Function? University of Kentucky, Grand Rounds. Lexington, KY. November 16, 2016.
44. **Lepley LK.** Cross-Education Training: Contralateral Limb Exercise to Promote Recovery of Neuromuscular Function in the Injured Limb. National Athletic Trainers' Association Annual Meeting and Symposium. Baltimore, MD. June 25, 2016.
45. **Lepley LK** and Palmieri-Smith RM. Maximizing muscle strength after ACL reconstruction: new insights to a clinical challenge. National Athletic Trainers' Association Annual Meeting and Symposium. Baltimore, MD. June 23, 2016.

46. **Lepley LK.** From bench to bedside: targeting muscle dysfunction after joint injury. University of Connecticut, Animal Science Seminar Series. Storrs, CT. February 26, 2016.
47. **Lepley LK.** Targeting muscle dysfunction after joint injury: new insights into a clinical challenge. University of Connecticut, Grand Rounds. Storrs, CT. October 22, 2014
48. **Lepley LK.** From bench to bedside: a translational research approach to restoring muscle function following joint injury. University of Kentucky, Exercise Science Seminar Series Department of Kinesiology and Health Promotion. Lexington, KY. April 3, 2015.
49. **Lepley LK.** Eccentric exercise as an intervention for muscle dysfunction after ACL injury. University of Kentucky, Center for Muscle Biology. Lexington, KY. March 12, 2015.
50. **Lepley LK.** Lost in translation? Using a rat model of ACL injury to promote clinical advancement. University of Kentucky, Center for Muscle Biology. Lexington, KY. September 24, 2014.
51. Thigpen CT, **Lepley LK**, Padua DA, Goerger BM, Bell DR. Systematic Rehabilitation, Return to Participation and Maintenance Following Traumatic Knee Joint Injury. National Athletic Trainers' Association Annual Meeting and Symposium. Las Vegas, NV. June 25, 2013.

EXTRAMURAL GRANTS (ONGOING)

Title: Translational strategies for optimizing musculoskeletal recovery after ACL injury (R01AR081235)

Role: **Lepley, LK** (PI)

Source: National Institute of Arthritis, Musculoskeletal and Skin Disease Research (scored 22, 3rd percentile)

Period: 08/15/2022-05/31/2026

Amount: \$1,830,215

Description: Overall objective is to use a preclinical ACL injury model to test specific neuromuscular electrical stimulation (NMES) treatment parameters and the underlying mechanisms of action. Aim 1 will define the intensity and time of treatment initiation that maximizes positive muscle outcomes using a custom-built rodent dynamometer that will translate the intensity of stimulus and strength outcomes to the human condition. Aim 2 will test the ability of optimized NMES to be protective of knee joint health by reducing risk factors for osteoarthritis after ACL injury. Aim 3 will determine the clinical importance between the loss of neural activation and mitochondrial dysfunction and explore whether future clinical applications should consider the concurrent use of mitochondrial-targeted antioxidant therapies after ACL injury.

Title: MiACL: Michigan initiative for ACL Rehabilitation (R01)

PI: Palmieri-Smith, RM

Role: **Lepley, LK** (Co-I)

Period: 09/01/2018-04/30/2023

Amount: \$3,024,036

Source: National Institute of Arthritis, Musculoskeletal and Skin Disease Research (scored 27, 16th percentile)

Description: To determine if high-intensity neuromuscular electrical stimulation combined with eccentric exercise and standard of care ACL rehabilitation can improve muscle strength, cartilage health, and biomechanics following ACL reconstruction.

Title: Skeletal Muscle Remodeling and Intramuscular Adipose Tissue following Traumatic Knee Injury (K01, scored 20)

PI: Bodkin, S

Role: **Lepley, LK** (Advisor)

Period: 07/01/2024-06/30/2029

Sub-Award Amount: Time-in-kind

Source: National Institute of Arthritis, Musculoskeletal and Skin Disease Research

Description: To develop new critical information about adipose-related muscle weakness after ACLR in conjunction with age.

EXTRAMURAL GRANTS (PENDING)

Title: Mitigating Quadriceps Atrophy After ACL Injury: The Role of Neuromuscular Dysfunction and Reactive Oxygen Species (F31)

PI: Stoneback, L

Role: **Lepley, LK** (Primary Advisor)

Period: 07/01/2025-06/30/2028

Award Amount: \$146,922.00

Source: National Institute of Arthritis, Musculoskeletal and Skin Disease Research

Description: To investigate the role of reactive oxygen species as a driver of poor muscle recovery in response to reduced quadriceps activation following ACL injury.

Title: Ergogenics of Muscle, Brain and Extracellular Vesicles dictate mobility Resilience (EMBER) (U19)

MPI: Rosano, C; Ambrosio, F; Bohlen, N

Role: **Lepley, LK** (Co-I)

Period: 09/01/2025-08/31/2030

Sub-Award Amount: \$142,137

Source: National Institute of Health, National Institute of Aging

Description: To test the overarching hypothesis that ergogenic features along the brain-muscle axis influence each other, are powered by extracellular vesicles signaling, and together, these features dictate gait speed in older adults.

Title: Minimizing Muscle Atrophy and PTOA Risk After ACL Injury Using Moderate Endurance Exercise to Support Redox Balance and Translational Loading Strategies to Protect the Joint

PI: **Lepley, LK**

Role: Principal Investigator

Period: 04/01/2026–03/31/2031

Award Amount: \$2,358,317.00

Source: National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS)

Description: Using a clinically translatable animal model of ACL injury, this project will evaluate endurance-based rehabilitative strategies that promote redox balance in muscle while incorporating body weight-supported treadmill exercise to reduce PTOA risk and pain. If successful, findings would shift how early ACL rehabilitation is approached by positioning endurance exercise as a primary intervention rather than a secondary add-on to strength-focused care.

EXTRAMURAL GRANTS (COMPLETED)

Title: Influence of eccentric exercise on muscle and joint health following ACL injury (1K01AR071503)

Role: **Lepley, LK** (PI)

Source: National Institute of Arthritis, Musculoskeletal and Skin Disease Research (scored 20)

Period: 04/01/2018-03/31/2023

Amount: \$707,260

Description: To provide the evidence-based data needed to support the incorporation of eccentric exercise into rehabilitation, we will establish a non-invasive, clinically translatable, ACL injury in a rat model and describe the time course of biomechanical alterations, inflammatory response and PTOA progression (aim 1). We will then use this model to report the effectiveness of eccentric exercise to treat muscle weakness (aim 2) and promote bone and cartilage health after ACL injury (aim 3).

Title: The Effect of Fat Infiltration after Anterior Cruciate Ligament Reconstruction on Quadriceps Mechanics and Patient Reported Function

Role: **Lepley LK** (PI)

Source: Eastern Athletic Trainers' Association Research

Period: 07/15/2019-01/01/2022

Amount: \$10,000

Description: To test the central hypothesis that a history of ACL reconstruction is associated with altered quadriceps mechanics, in concert with greater fat accumulation, that impede quadriceps function and are detrimental to patient reported outcomes.

Title: Eccentric exercise to promote immediate beneficial adaptations to muscle

Role: **Lepley LK** (PI)

Mentor: Butterfield TA

Source: National Athletic Trainers' Association Research and Education Foundation, New Investigator Grant

Period: 07/01/2016-10/01/2019

Amount: \$22,998.47

Description: To compare the cellular responses of vastus lateralis muscles that have been subjected to eccentrically or concentrically biased exercises *in vivo*.

Title: Eccentric Cross-Exercise: A Novel Approach to Promote Recovery of Muscle Strength and Lower Extremity Function after ACL Reconstruction.

Role: **Lepley LK** (PI)

Source: New England American College of Sports Medicine

Period: 10/15/2015- 10/31/2018

Amount: \$2,500

Description: To examine the effectiveness of an eccentric cross-exercise intervention to improve neural excitability, muscle strength and lower extremity function in ACL reconstructed patient early after surgery.

Title: Quadriceps Inhibition after ACL injury: Neuromuscular and Functional Consequences

PI: Palmieri-Smith, RM

Role: **Lepley LK** (graduate research assistant)

Source: National Institute of Health, NIAMS (K08-053152-03)

Period: 2008 – 2012

Description: To determine the magnitude of quadriceps arthrogenic muscle inhibition necessary to alter lower extremity mechanics and to assess the feasibility of introducing NMES to reverse quadriceps weakness and restore knee kinematics.

Title: The effectiveness of a combined NMES and eccentric exercise intervention to improve quadriceps function and restore knee mechanics post-ACL reconstruction

Role: **Lepley LK** (PI)

Source: National Athletic Trainers' Association Research and Education Foundation

Period: 07/09/2013 – 05/02/2014

Amount: \$2,500

Description: To examine the effectiveness of a combined neuromuscular electrical stimulation and eccentric exercise intervention to improve quadriceps activation, strength and knee flexion angles and moments during a dynamic landing task post-ACL reconstruction.

Title: Effect of acute lateral ankle sprain on motor neuron pool excitability of the lower leg muscles

Role: **Klykken, LW** (PI)

Source: National Athletic Trainers' Association Research and Education Foundation

Period: 12/12/2008 – 06/01/2009

Amount: \$1,000

Description: To determine the effect of an acute lateral ankle sprain on the alpha motoneuron pool excitability of the soleus, peroneal longus, and anterior tibialis muscles.

EXTRAMURAL GRANTS (NOT FUNDED)

Title: Effect of metformin on quadriceps strength after ACL reconstruction: an ancillary PIKASO study (Ancillary R01)

PI: Wellstandt, E

Role: **Lepley, LK** (Co-I)

Period: 12/01/2024-11/30/2028

Sub-Award Amount: \$65,988

Source: National Institute of Arthritis, Musculoskeletal and Skin Disease Research (AO scored 50)

Description: To determine the impact of metformin on early recovery of quadriceps strength after ACL reconstruction.

Title: Mechanisms of quadriceps neuromuscular dysfunction following anterior cruciate ligament injury: implications for future clinical trials

Role: **Lepley LK** (PI)

Source: Source: National Institute of Arthritis, Musculoskeletal and Skin Disease Research (A0 and A1 scored 43)

Period: 07/01/2021-06/30/2024

Amount: \$713,988

Description: By using cutting-edge imaging technologies, we plan to serially capture detailed information about modifiable adaptations in brain and skeletal muscle anatomy that explain strength deficits to identify the stages of neuromuscular dysfunction after anterior cruciate ligament reconstruction during which patients are most likely to respond to targeted intervention.

Title: Rapidly Restoring Readiness After Traumatic Joint Injury by Targeting Early Strength Recovery

Role: **Lepley LK** and Grooms DR (MPI)

Source: Source: DoD Peer Reviewed Orthopaedic, Clinical Trial Award (scored 2.2)

Period: 10/01/2021-09/30/2025

Amount: \$2,746,357

Description: Clinical trial to rigorously evaluate the efficacy of eccentric cross-exercise after ACLR to improve muscle strength recovery (aim 1) and target the treatment-resistant neural deficits that emerge after ACL injury/ACLR that prevent strength recovery (aim 2).

Title: Understanding the Role of Minor Spliceosome in Amyotrophic Lateral Sclerosis

PI: Kanadia Rahul

Role: **Lepley LK** (Co-I)

Source: National Institute of Health, NINDS (not discussed)

Period: 07/01/2020-06/30/2025

Amount: \$2,365,422 (sub-award to UM \$475,003)

Description: To facilitate discovery of new therapeutic targets, the objective of this proposal is to understand the molecular and cellular underpinnings of motor neuron diseases.

Title: Neuromuscular and Psychological Dysfunction: A Novel Method for Evaluating Learned Helplessness after ACL Injury

Role: **Lepley, LK** and Burland JP (MPI)

Source: Eastern Athletic Trainers' Association Inc.

Description: To determine if neural impairments initiate a cycle of learned helplessness after ACLR.

Title: Improving Soldier Readiness After Traumatic Joint Injury by Targeting Neuromuscular Deficits (ARA)

Role: **Lepley, LK** and Grooms DR (MPI)

Source: Department of Defense (scored 2.0)

Description: The overall objective of this proposal is to longitudinally evaluate change in neural activity and muscle morphology after ACLR to elucidate the underlying neural and morphological mechanisms of strength loss that are needed to develop new more effective evidence-based rehabilitation strategies.

Title: NBPA & NBA Partnership with University of Connecticut for Wearable Device Validation and Review

Role: **Lepley, LK** and Casa DJ (MPI)

Source: NBPA & NBA

Description: The overall objective of this proposal is to validate specific movement and biometric devices for the NBA and NBPA.

Title: Eccentric exercise in youth after ACL reconstruction: novel rehabilitation approach to targeting neuromuscular deficits

Role: **Lepley, LK** (PI)

Co-I: Grooms, DR

Source: Charles H. Hood Foundation Child Health Research Awards Program

Description: To test the ability of eccentric exercise after ACL reconstruction in youth to promote strength and physical function (aim 1) by targeting alterations in neural activity (aim 2) and muscle morphology (aim 3).

Title: MiACLr: Multi-center initiative for ACL rehabilitation (U34)

PI: Palmieri-Smith, RM

Role: **Lepley, LK** (Co-I)

Source: National Institute of Arthritis, Musculoskeletal and Skin Disease Research (scored 42, 32nd percentile)

Description: Clinical trial planning cooperative agreement to determine if high-intensity neuromuscular electrical stimulation combined with eccentric exercise and standard of care ACL rehabilitation is capable of improving muscle strength, cartilage health, and biomechanics following ACL reconstruction.

Title: Influence of patellar tendinopathy on neuromuscular function: new insights into a clinical challenge

Role: **Lepley, LK** (PI)

Co-Is: Lepley, AS; DiStefano, LJ; Denegar CR

Source: National Basketball Association and General Electric Healthcare

Description: To investigate potential neuromuscular abnormalities in patients with protracted patellar tendinopathy and the ability of an eccentric exercise intervention to ameliorate adaptations in neural activity, muscle and tendon structure.

Title: Neuroplastic mechanisms of eccentric strength training

PI: Grooms, DR

Role: **Lepley, LK** (Co-I)

Source: National Strength and Conditioning Association Foundation (submitted 03-15-2016)

Description: To determine the mechanisms underlying the unique neuroplastic adaptations associated with eccentric exercise in a healthy athletic cohort and in ACL reconstructed individuals.

Title: Comprehensive neural and morphological approach to identifying the origins of dysfunction following ACL reconstruction

PI: Lepley, AS

Role: **Lepley, LK**; Kinsella-Shaw, JM (Co-Is)

Source: Eastern Athletic Trainers' Association (submitted 03-15-2016)

Description: To determine the contributions of neural and morphological adaptations after ACL reconstruction to quadriceps weakness and clinical dysfunction.

INTRAMURAL GRANTS (ONGOING)

None

INTRAMURAL GRANTS (PENDING)

None

INTRAMURAL GRANTS (COMPLETED)

Title: Neural and Morphological Alterations After Non-Invasive ACL Rupture: Identifying Modifiable Risk Factors of Post-Traumatic Osteoarthritis

Role: **Lepley, LK** and Reed, SA (MPI)

Source: Research Excellence Program, University of Connecticut

Amount: \$49,995

Description: To longitudinally evaluate differences in neural activity, muscle morphology, and knee joint health between rats that have undergone our novel non-invasive ACL injury and control rats.

Title: Motor Control Deficits After ACL Reconstruction: Underlying Cortical Adaptations

Role: **Lepley, LK**, Lepley AS, Harrison S (MPI)

Co-Is: Molfese PJ, Kinsella-Shaw JM

Source: The Connecticut Institute for the Brain and Cognitive Sciences (IBaCS) and the Institute for Collaboration on Health, Intervention, Policy (InCHIP) Seed Grant Competition, University of Connecticut

Amount: \$15,000

Description: Investigate the underlying cortical adaptations supporting the observed change in the relative importance of vision and somatosensory information for ACLR patients.

Title: Contributions of Cortical Activation and Neural Excitability on Quadriceps Muscle Function in Patients with ACL Reconstruction

Source: The University of Connecticut's Brain Imaging Research Center

PI: Lepley AS

Role: **Lepley LK** and Kinsella-Shaw JM (Co-Is)

Period: 2016-2017

Amount: \$10,000 (20 hours MRI scan time)

Description: To determine the contributions of brain activation (motor, somatosensory and visual-motor cortices) and neural excitability (corticospinal and spinal reflexive pathways) on clinical measures of quadriceps function (muscle strength and voluntary activation).

Title: Eccentric exercise to promote muscle recovery and joint health after ACL injury

Role: **Lepley, LK** (PI)

Amount: \$2,500

Source: Institute for Collaboration on Health, Intervention, and Policy; University of Connecticut

Description: To test the central hypothesis that a rehabilitation protocol heavily biased towards eccentric contractions will attenuate maladaptations in neural activity and muscle morphology and promote joint health better than the currently practiced standard of concentric exercise using a novel rodent model of non-invasive ACL rupture.

Title: Eccentric exercise to promote muscle function

Role: **Lepley, LK** and Butterfield, TA (MPI)

Source: College of Health Sciences; University of Kentucky

Amount: \$5,000

Description: To determine the dose-response of eccentric exercise on regulating protein synthesis and limiting micro-damage.

Title: Effectiveness of an eccentric exercise intervention to improve quadriceps strength post-ACL reconstruction

Role: **Lepley, LK** (PI)

Source: Rackham Graduate School; University of Michigan

Period: 09/04/2013 – 05/02/2014

Amount: \$3,000

Description: To determine the effectiveness of an eccentric exercise intervention to improve quadriceps strength and knee mechanics in patients post-ACL reconstruction.

Title: Effect of NMES on quadriceps activation and knee joint mechanics in patient's post-anterior cruciate ligament reconstruction

Role: **Lepley, LK** (PI)

Source: Rackham Graduate School; University of Michigan

Period: 01/12/2011 – 05/02/2014

Amount: \$1,500

Description: To evaluate the effectiveness of neuromuscular electrical stimulation therapy to improve quadriceps activation and knee mechanics in patients post-ACL reconstruction.

INTRAMURAL GRANTS (NOT FUNDED)

Title: Perceptual-motor organizations in patients after anterior cruciate ligament reconstruction

Role: **Lepley LK**, Lepley AS, Harrison SJ (MPI)

Co-Is: Kinsella-Shaw JM and Molfese PJ

Period: 2016-2018

Amount: \$20,000

Source: The Connecticut Institute for the Brain and Cognitive Sciences

Description: To investigate differences in structural brain connectivity between participants with ACL reconstruction and controls, and to understand the functional differences in cortical activation during perceptual inter-knee coordination tasks.

Title: Team Science Initiative for Human Movement Science

Role: Harrison SJ, **Lepley, LK**, Morgan K (MPI)

Source: Research Excellence Program, University of Connecticut

Amount: \$50,000

Description: To lay the groundwork for our human movement science team science initiative via the collaborative study of action.

TEACHING**University of Michigan**

| | |
|------------|--|
| 2013 | Human Musculoskeletal Anatomy Lab (MVS 231) |
| 2012 | Prevention and Care of Athletic Injuries (AT 115) |
| 2011, 2013 | Clinical Evaluation of Lower Extremity Athletic Injuries Lab (AT 217) |
| 2011 | Functional Human Anatomy Lab (ATPE 310) |
| 2010-2012 | Clinical Evaluation of Upper Extremity Athletic Injuries Lab (AT 212) |
| 2010-2012 | Rehabilitation of Athletic Injuries Lab (AT 362) |
| 2019- | Neuromechanics (KINESLGY 513) *curriculum developed* |
| 2024- | Contemporary Issues in Sports Medicine (AT 613) *curriculum developed* |
| 2025- | Research Methods and Statistics in Sports Medicine (AT 611) |

University of Connecticut

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|-----------|---|
| 2018 | Senior Thesis in Psychology (PSYCH 4197W) |
| 2017-2018 | Honors Thesis (KINS 3697W) |
| 2016-2018 | Independent Study for Undergrads (KINS 3099) |
| 2016-2017 | Therapeutic Interventions I (KINS 3102) |
| 2016-2018 | Neuromuscular Function & Effects of Injury (KINS 6535) *curriculum developed* |
| 2016-2018 | Functional Anatomy for Athletic Trainers (KINS 3120) |
| 2015-2017 | Health and Medicine (KINS 3170) |
| 2015 | Physiological Systems in Human Performance (KINS 4500) |

University of Kentucky

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| 2015 | Muscle Mechanics (AT 700) |
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MENTORING**Doctoral Students** (in reverse chronological order)

1. Stoneback, Luke. **Chair** (University of Michigan). *Current student.*
2. White, McKenzie. **Chair** (University of Michigan). *Completed. Postdoctoral Researcher at Stanford.*
3. Davi, Steven. Characterizing Changes in Quadriceps Neuromechanics After Anterior Cruciate Ligament Reconstruction. **Chair** (University of Connecticut). *Completed. Health Science Specialist, John A. Feagin Jr. Sports Medicine Fellowship at Keller Army Hospital.*
4. Butler, Cody. **Committee Member** (University of Connecticut). *Completed. Research Deputy Flight Commander, Special Warfare Human Performance Squadron at Lackland Air Base.*
5. Hunt, Emily. **Committee Member** (University of Kentucky). *Completed. Medical Science Liaison Heraeus Medical LLC.*
6. Burland, Julie. Disruptions in Physical and Neurocognitive Wellness after Anterior Cruciate Ligament Reconstruction. **Chair** (University of Connecticut). *Completed. Assistant Research Professor in the Department of Kinesiology at the University of Connecticut, and Director of Research for the University of Connecticut Institute for Sports Medicine Research Coordinator at the Institute of Sports Medicine at the University of Connecticut.*
7. Cutis, Ryan. Establishing an Injury Determinant Framework for NCAA Division I Soccer. **Committee Member** (University of Connecticut). *Completed. Athletic Performance Data Manager with San Antonio Spurs.*
8. Harrison, Layci. Balance: Relationship to Functional Movement and Training to Minimize Asymmetry. **Committee Member** (Middle Tennessee State University). *Completed. Clinical Assistant Professor at the University of Houston.*
9. Beltz, Eleanor. Modifiable Risk Factors Contributing to Neuromuscular Control in Adolescent Female Basketball Athletes. **Committee Member** (University of Connecticut). *Completed. Assistant Professor at Northern Vermont University.*

Masters Students (in reverse chronological order)

1. Buchanan, Brianna. **Chair** (University of Michigan). *Current.*
2. Schwartz, Ava. **Chair** (University of Michigan). *Completed. PhD student University of Central Florida.*
3. Allen, Kirsten. **Chair** (University of Connecticut). *Completed.*
4. Walker, Johnny. Influence of Eccentric Exercise on Hamstrings Neuromuscular Function in Patients after ACL Reconstruction. **Committee Member** (University of Toledo). *Completed.*
5. Rush, Justin. **Co-Chair**. (University of Connecticut). *Completed. Postdoctoral Research Ohio University.*
6. Gerhart, Taylor. Exploring the Medical Model Organizational Structure on the Collegiate Athletic Trainers Quality of Life: A Case Study. **Committee Member** (University of Connecticut). *Completed.*
7. Driscoll, Colleen. Hip Muscle Activity during Functional Movement Assessment. **Committee Member** (University of Connecticut). *Completed.*

8. Peckham, Kyle. The Influence of Sport Specialization on Neuromuscular Control in High School Athletes. **Committee Member** (University of Connecticut). *Completed.*
9. Davi, Steven. Neuromuscular Alterations in Patients with Patellar Tendinopathy. **Co-Chair** (University of Connecticut). *Completed.*
10. Johnson, Alexa. Underlying Factors of Neural Activity that Regulate Torque Development after Anterior Cruciate Ligament Reconstruction. **Committee Member** (University of Michigan). *Completed. Postdoctoral Fellow at the University of Michigan.*
11. Blanchard, Adam. Resting Blood Pressure and Muscle Strength in Healthy Men and Women. **Committee Member** (University of Connecticut). *Completed.*
12. Fitzpatrick, Shane. Ankle Health Regulates Lower Extremity Muscle Behavior and Coordination in Walking Rats. **Committee Member** (University of Kentucky). *Completed.*

Physical Therapy Doctoral Research Projects (in reverse chronological order)

1. McCormick, Grace. Eccentric Exercise to Promote Immediate Beneficial Adaptations to Muscle. **Chair** (University of Connecticut). *Completed.*
2. Frechette, Laura. Chronic Adaptations in Knee Biomechanics and Neuromuscular Function After ACL Reconstruction. **Chair** (University of Connecticut). *Completed.*
3. Mosher, Jennifer. Eccentric Cross-Exercise After ACL Reconstruction: Case Series Investigation of a Novel Approach to Enhance Recovery of Neuroplasticity. **Chair** (University of Connecticut). *Completed.*
4. Digiacomo, Jessica. Do Alterations in Knee Morphology Differ Between Patients that Have Experienced a Secondary ACL Injury and Those That Do Not? **Chair** (University of Connecticut). *Completed.*
5. Woxholdt, Colleen. Analyzing the Neural Contributors to Poor Muscle Activation After ACL Reconstruction. **Chair** (University of Connecticut). *Completed.*

Undergraduate Research Projects (in reverse chronological order)

1. Csordas, David. Lost in Translation? Examining the Effect of a Non-Invasive ACL Injury on Muscle Activation. **Honors Thesis - Advisor** (University of Connecticut). *Completed. PhD student at the University of Virginia.*
2. Porto, Gustavo. The Effect of Age and Sex on Non-Invasive Anterior Cruciate Ligament Tear Mechanism. **Honors Thesis - Advisor** (University of Connecticut). *Completed. Enrolled in medical school at Quinnipiac University.*
3. Burke, Margaret. Learned Helplessness and the use of Transcranial Direct Current Stimulus in ACLR Patients. **Honors Thesis - Advisor** (University of Connecticut). *Completed.*
4. Dragotta, Kristen. Investigating the Underlying Neurological Factors that Regulate Force Production After ACL Reconstruction. **Honors Thesis - Advisor** (University of Connecticut). *Completed.*
5. Cofield, Kaitlyn. Analyzing the Influence of Barriers and Facilitators on Perceived Function vs. Physical Function after Anterior Cruciate Ligament Reconstruction. **Honors Thesis - Advisor** (University of Connecticut). *Completed.*

6. Redman, John. How Does Knee Morphology Contribute to ACL Re-injury? **Committee Member** (University of Michigan). *Completed*.
7. Stortini, Nicole. Pre-operative Quadriceps Strength is Associated with Post-operative Quadriceps Strength, Not Hop Distance Following ACL Reconstruction. **Committee Member** (University of Michigan). *Completed*.
8. Strickland, MA. Alterations in Hamstring Activity at Return-To-Play Post-ACLR: Protective Mechanism Among Patients That Do Not Reinjure? **Committee Member** (University of Michigan). *Completed*.
9. Hilu, Sarah. The Effectiveness of Neuromuscular Electrical Stimulation to Promote the Recovery of Quadriceps Strength. **Committee Member** (University of Michigan). *Completed*.

High School Research Projects

1. Marimon, Lauren. Kinesiophobia and pain negatively affect ACL recovery. Glastonbury High School Advanced Research Program. **Primary Mentor** (Glastonbury High School, Glastonbury CT). *Completed*.

Laboratory Members (in reverse chronological order)

1. Singh, Simran. University of Michigan. (Biology, Health & Society). 2024-pres
2. Tipurita, Roxana. University of Michigan (Kinesiology), 2024-pres
3. Damouni, Lucas. University of Michigan (LSA), 2024-pres
4. Minott, Elise. University of Michigan (Kinesiology), 2024-pres
5. Buchanan, Brianna. University of Michigan (Kinesiology), 2024-pres
6. Perakis, Justine. University of Michigan (LSA), 2024-pres
7. Hussein, Hadi. University of Michigan (Kinesiology), 2024-pres
8. Dionyssopoulos, Serafim. University of Michigan (Biochemistry), 2023-pres
9. Graham, Katherine. University of Michigan (Kinesiology), 2023-pres
10. Vanhooose, Ethan. University of Michigan (Kinesiology), 2023-pres
11. Greeves, Mae. University of Michigan (Movement Science), 2023-2024
12. Gustafson, Keegan. University of Michigan (Biopsychology, Cognitive Science, Neuroscience), 2023-pres
13. Lezeau, Veronica. Washington Jefferson University (Neuroscience), summer 2023
14. Stoneback, Luke. University of Michigan (Kinesiology), 2022-pres
15. Weishuhn, Benjamin. University of Michigan (Movement Science), 2022-2024
16. Damouni, Jacob. University of Michigan (Biology, Health and Society), 2022-2024
17. DeDolph, Mitchell. University of Michigan (Biology), 2022-2024
18. Wolf, Jillian. University of Michigan (Biomedical Engineering), 2022-2024
19. Vaikutis, Leah. University of Michigan (Movement Science), 2022-2024
20. Igesias, Alexa. University of Michigan (Biomedical Engineering), 2022-2024
21. Ali, Dania. University of Michigan (Kinesiology), 2022-pres
22. Mancini, Lucia. University of Michigan (Biomedical Engineering), 2022-2023

23. Naaz, Sairub. University of Michigan (Graduate Program in Computer Science), 2022-pres
24. Ramesh, Akhil. University of Michigan (Biomedical Engineering), 2021-2024
25. Gueller, Grant. University of Michigan (Biopsychology, Cognition, and Neuroscience), 2021-2024
26. Pingel, Joel. University of Michigan (Biomedical Engineering), 2021-2023
27. Sakhalkar, Yash. University of Michigan (Biomedical Engineering), 2021-2023
28. Golden, Abby. University of Michigan (Applied Exercise Science), 2021-pres
29. Peterson, Emma. University of Michigan (Movement Science), 2022-2023
30. Hyde, Cady. University of Michigan (Movement Science), 2022-2023
31. Roy, Aproova. University of Michigan (Graduate Program in Mechanical Engineering), 2022-2023
32. Zucker, Elizabeth. University of Michigan (Movement Science), 2021-2023
33. Casey, Claire. University of Michigan (Biomedical Engineering), 2019-2023

PROFESSIONAL CERTIFICATIONS

| | |
|-----------|--|
| 2021-pres | State of Michigan, Controlled Substance Laboratory License; 5315226587 |
| 2015-2019 | State of Connecticut, Controlled Substance Laboratory License; 0001125 |
| 2015-2019 | Connecticut Dept. of Public Health, Licensed Athletic Trainer; 1081 |
| 2015-pres | American Society of Biomechanics; 5023 |
| 2010-pres | Michigan Dept of Community Health, Licensed Athletic Trainer; 2601000081 |
| 2009-pres | National Provider Identification Number; 1720229537 |
| 2008-2010 | Virginia Board of Medicine, Licensed Athletic Trainer; 0126001277 |
| 2008-2010 | Virginia High School League Certified Measurer; CM750 |
| 2008-pres | Board Certified Athletic Trainer; 050802079 |
| 2007-pres | National Athletic Trainer’s Association; 1012916 |
| 2006-pres | American Red Cross CPR/AED Professional Rescuer Certification |
| 2005-pres | American Red Cross First Aid Certified |

PROFESSIONAL SERVICE ACTIVITIES**Manuscript Reviewer**

2023-pres American Journal of Physiology-Cell Physiology
 2021-pres Journal of Applied Physiology
 2021-pres Cartilage
 2019-pres Journal of Musculoskeletal and Neuronal Interactions
 2019-pres International Journal of Athletic Therapy & Training
 2019-pres Sports Medicine
 2017-pres Frontiers in Physiology
 2016-pres Muscle & Nerve
 2015-pres Journal of Science and Medicine in Sport
 2015-pres Journal of Orthopaedic Research
 2015-pres American Journal of Sports Medicine
 2015-pres Medicine & Science in Sports & Exercise
 2015-pres BioMed Central Musculoskeletal Disorders
 2014-pres BioMed Research International
 2014-pres Clinical Biomechanics
 2014-pres Physical Therapy in Sport
 2014-pres Knee Surgery Sport Traumatology Arthroscopy
 2013-pres Clinical Journal of Sport Medicine
 2012-pres Journal of Sports Rehabilitation
 2012-pres Athletic Training & Sports Health Care
 2011-pres Sports Health: A Multidisciplinary Approach
 2011-pres Journal of Athletic Training

Affiliations

2019-pres University of Michigan, Michigan Integrative Musculoskeletal Health Core Center (NIAMS P30), Member
 2016-pres Athletic Trainers' Osteoarthritis Consortium, Member
 2016-2019 University of Connecticut, Center for Advancing Pain Management, Member
 2016-2019 University of Connecticut, Institute for Brain and Cognitive Sciences, Member
 2014-2019 University of Connecticut, Institute for Collaboration on Health, Intervention, and Policy, Member

Grant Application Reviewer

2025 National Institute of Health, Chair, Special Emphasis Panel/Scientific Review Group, Skeletal Muscle and Rehabilitation Sciences
 2023-pres Department of Defense, Scientific Reviewer (2023) Chair (2024), USA Medical Research and Development Command, Spinal Cord Injury Research Program
 2022-pres National Institute of Health, Ad-hoc Member, Small Business Innovation Research/Technology Transfer
 2020-pres Department of Defense, Scientific Reviewer, USA Medical Research and Development Command, Broad Agency Announcement
 2017-pres National Athletic Trainers' Association Foundation
 2016-2019 University of Connecticut, Institute for Collaboration on Health, Intervention, and Policy, Seed Grants
 2016-2019 University of Connecticut, Institute for Collaboration on Health, Intervention, and Policy, Grant Proposal Incubator, Advisory Board Member
 2015-2019 University of Connecticut, UConn IDEA Grants