Lindsey K Lepley, PhD ATC | Short Curriculum Vitae
Associate Professor, School of Kinesiology, University of Michigan

EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE	Completion Date	FIELD OF STUDY
Grand Valley State University, Allendale MI	**B.S.**	**05/2008**	**Athletic Training**
University of Virginia, Charlottesville VA	**M.Ed.**	**08/2009**	**Sports Medicine**
University of Michigan, Ann Arbor MI	**Ph.D.**	**05/2014**	**Kinesiology**
University of Kentucky, Lexington KY	**Postdoc**	**07/2015**	**Muscle Mechanics & Physiology**

Personal Statement:
My research agenda focuses on elucidating the mechanisms that regulate skeletal muscle strength, activation, and structure after traumatic joint injury to establish interventions that optimize muscle recovery. To advance clinical practice, my research group utilizes non-invasive animal injury models and human subject research to design, test, and translate new sports medicine strategies from conception to practice. This rare blend of scientific approaches empowers my lab to make fundamental discoveries about musculoskeletal health that can change rehabilitation.

My expertise in neurophysiology, biomechanics, skeletal muscle, and orthopedics provides a unique platform for answering significant questions in sports medicine. As a tenure-track faculty member (University of Connecticut [2015-2019]; University of Michigan [2019-present]), this expertise has led to a series of external benchmarks from the scientific community that point to my significant and sustained contributions to the sports medicine field.

Notable accomplishments include:
- >$2.5 million dollars in extramural from the National Institute of Health (NIH) as the PI
    - K01AR071503 awarded at University of Connecticut (project period: 04/2018-03/2023)
    - R01AR081235 awarded at University of Michigan (project period: 08/2022-05/2026)
- 58 peer-reviewed publications (30 as corresponding author)
    - 15 published at University of Connecticut
    - 26 published at University of Michigan
- H-index of 25, and i10-index of 35 as reported by Google Scholar (profile link)
- 43 national and 5 international invited presentations
- 2 NIH Loan Repayment Awards (2016, 2019)
- 2022 Dr. Freddie & Mrs. Hilda Pang Fu New Investigator Award from the National Athletic Trainers' Association Research & Education Foundation

Positions, Scientific Appointments, and Honors
Positions and Employment:

2010-2014	Doctoral Fellow, University of Michigan, School of Kinesiology
2014-2015	Postdoctoral Fellow, University of Kentucky, Department of Rehabilitation Sciences
2015-2019	Assistant Professor, University of Connecticut, Department of Kinesiology
2019-2023	Assistant Professor, University of Michigan, School of Kinesiology
2023-pres	Associate Professor, University of Michigan, School of Kinesiology

Contributions to Science:
Elucidating the mechanisms that regulate skeletal muscle strength, activation, and structure after traumatic joint injury. Persistent muscle weakness after traumatic joint injury is known to restrict physical activity and independently contribute to the development of post-traumatic osteoarthritis. While persistent weakness has been linked to physical disability, the sources of this condition remain largely undefined leaving a fundamental gap in the literature. Longitudinal experiments conducted in preclinical models offer a potent means of systematically uncovering the mechanisms underlying neuromuscular adaptations following injury. Our previous publications attest to our capability to

meticulously collect data on muscle-level neural activity, structure, and function, enabling us to make groundbreaking discoveries and substantiate clinical observations.

a) 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. J Orthop Res. 2024 Nov;42(11):2485-2494. doi: 10.1002/jor.25910. PMID: 38824275.
b) 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. PMID: 38496299; PMCID: PMC10940348.
c) 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. 2020 Dec 9:10.1002/jor.24943. doi: 10.1002/jor.24943. Epub ahead of print. PMID: 33295680
d) 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. PMID: 35153832
e) 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/japplphysiol.00070.2021. Epub 2021 Nov 11. PMID: 34762530; PMCID: PMC8742731.

Establishing interventions that optimize muscle recovery. The typical clinical solution to address weakness after joint injury is to simply prescribe more exercise. Unfortunately, multiple systematic reviews have shown that this approach is not effective. We seek to improve the recovery trajectory by exploring therapies that are capable of mechanistically targeting the unique pathological changes in skeletal muscle strength, activation, and structure that are associated with the injury. We have previously shown that our team has significant history in performing ACL clinical trials in which the efficacy of electrical stimulation therapies and the mode of exercise prescription have been successfully tested.

a) **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. PMID: 32196379
b) **Lepley LK**, Wojtys EM, Palmieri-Smith RM. Combination of eccentric exercise and neuromuscular electrical stimulation to improve quadriceps function post-ACL reconstruction. Knee. 2015 Jun;22(3):270-7. doi: 10.1016/j.knee.2014.11.013. PMID: 25819154
c) **Lepley LK**, Grooms DR, Burland JP, Davi SM, Mosher JL, Cormier ML, Lepley AS. Eccentric cross-exercise after anterior cruciate ligament reconstruction: Novel case series to enhance neuroplasticity. Phys Ther Sport. 2018 Nov;34:55-65. doi: 10.1016/j.ptsp.2018.08.010. PMID: 30223234.
d) **Lepley LK**, 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. PMID: 25117873
e) **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. Epub 2023 Apr 24. PMID: 37093645

For a complete list of my published work please see MyBibliography:
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