Cara L. Lewis, P.T., Ph.D.
Associate Professor
Departments of Physical Therapy and Health Sciences
Sargent College of Health and Rehabilitation Sciences
Boston University
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Professional Employment

2019-present Director, Rehabilitation Sciences PhD Program
Sargent College of Health and Rehabilitation Sciences
Boston University

2017-present Associate Professor, Division of Rheumatology, Department of Medicine
Boston University Chobanian & Avedisian School of Medicine

2016-present Associate Professor, Department of Physical Therapy
Associate Professor, Department of Health Sciences
Sargent College of Health and Rehabilitation Sciences
Boston University

2015-2016 Assistant Professor, Department of Health Sciences
Sargent College of Health and Rehabilitation Sciences
Boston University

2013-2017 Assistant Professor, Clinical Epidemiology Research and Training Unit
Department of Medicine
Boston University Chobanian & Avedisian School of Medicine

2009-2016 Assistant Professor, Department of Physical Therapy & Athletic Training
Sargent College of Health and Rehabilitation Sciences
Boston University

2000-2005 Physical Therapist, *TheraPlus,* Richmond Heights, MO
Responsible for designing and overseeing exercise programs for a variety of patient populations, including pediatric and stroke.

1999-2000 Staff Physical Therapist, *BJC Rehabilitation and Fitness*, St. Louis, MO
Responsible for evaluating and treating individuals with musculoskeletal dysfunction in an outpatient setting.

1997-1999 Staff Physical Therapist, *Barnes-Jewish Hospital,* St. Louis, MO
Responsible for evaluating and treating patients, supervising Physical Therapist Assistants, and determining staffing needs for multiple department sites.

Education

University of Michigan Ann Arbor, Michigan
Post-doctoral Fellowship, Kinesiology
Research Advisor: Daniel P. Ferris, PhD
2006-2009

Washington University in St. Louis St. Louis, Missouri
Doctor of Philosophy, Movement Science
Dissertation title: *Effect of Joint Position and Muscle Activation Patterns on Anterior Hip Joint Forces and Hip Pain*
Dissertation Advisor: Shirley A. Sahrmann, PT, PhD

December, 2005

Washington University in St. Louis, School of Medicine St. Louis, Missouri
Master of Science, Physical Therapy
December, 1996

University of Notre Dame Notre Dame, Indiana
Bachelor of Science, Pre-professional Studies; graduated with honors.
May, 1993

Academic and Professional Honors

2023	Reviewer of the Year, Osteoarthritis and Cartilage
2022	Nominee, Supervisor of the Year, Boston University
2020	Participant, Faculty Coaching Program, ARROWS: Advance, Recruit, Retain & Organize Women in STEM
2019	Nominee, Graduate Women in Science & Engineering (GWISE) Mentor of the Year Nominee, Dean's Award for Excellence in Graduate Education
2017	Recipient, Early Career Investigator Award in Biomechanics Research, Biomechanics Special Interest Group of the Section on Research, American Physical Therapy Association
2016	Recipient, Eugene Michels New Investigator Award, American Physical Therapy Association
2015	Recipient, Arthritis Research UK Centre for Sport, Exercise and Osteoarthritis Fellowship (£4,390)
2014	Recipient, UROP Outstanding Mentor Award, Boston University
2014	Participant, Early Career Women Faculty Professional Development Seminar, Association of American Medical Colleges
2013	Invited participant, NIH 8th Annual Symposium on Advances in Pain Research
2012	Participant, AAOS/ORS Femoroacetabular Impingement Research Symposium
2011	Recipient, Outstanding Service Award, Federation of State Boards of Physical Therapy
2011	Member, Item Writing Task Force, Federation of State Boards of Physical Therapy
2011	Recipient, NIH Clinical and Translational Science Institute KL2 Scholar
2010	Peter Paul Career Development Professorship ($120,000 total award)
2010	Inductee, Academy of Advanced Item Writers, Federation of State Boards of Physical Therapy
2009	Participant, ERRIS Intensive Workshop on Grant Writing, Preparation, and Submission in Rehabilitation Research
2007-2009	Recipient, NIH Kirschstein-NRSA Individual Post-Doctoral Research Fellowship
2006	Recipient, NIH Kirschstein-NRSA Institutional Post-Doctoral Research Fellowship
2004-present	Advanced Item Writer, National Physical Therapy Examination
2003	Invited Presenter, Marilyn Gossman Graduate Student Seminar, APTA Combined Sections Meeting
2000-03	Recipient, Kirschstein-NRSA Institutional Pre-Doctoral Research Fellowship
1999-04	Member, Examination Construction and Review Committee for the National Physical Therapy Examination

Publications

Peer-reviewed Papers

94. Kiapour A, Mitchell C, Hosseinzadeh S, Emami A, Afacan O, Warfield S, Bixby SD, Stracciolini A, Novais E, Lewis CL, Kim YJ. Hip translation is associated with hip rotation

and anatomy: A pilot quasi-static MRI study. *Orthopaedic Journal of Sports Medicine.* Accepted April 1, 2024.

93. Lewis CL, Shefelbine SA. Perspectives: Lost in translation: female athletes are not male athletes, especially at the hip. *Journal of Orthopaedic Research.* DOI: 10.1002/jor.25860
92. Le H, d'Hemecourt P, Jackson S, Whitney K, Millis M, Wuerz T, Lewis CL, Kiapour A, Stracciolini A. Protocol and validity testing of femoroacetabular posterior translation with dynamic hip ultrasonography. *Skeletal Radiology*. 2024 Jan 13. DOI: 10.1007/s00256-024-04560-3 PMID: 38217703
91. Grosklos M,* Fanning J, Friedberg G, Lewis CL, Di Stasi S. Increased duration and intensity of physical activity are associated with increased pain in individuals with femoroacetabular impingement syndrome. *Archives of Physical Medicine and Rehabilitation.* 2024 Apr;105(4):725-732. DOI: 10.1016/j.apmr.2023.12.011
90. Nurse C,* Lewis CL, Shefelbine SJ. Frontal plane pelvic mechanics during high velocity running: association with hamstring injury history. *Physical Therapy in Sport*. 2023: 133-39. DOI: 10.1016/j.ptsp.2023.10.002
89. Grosklos M,* Lewis CL, Ceballos E, Perry J, Di Stasi S. Females with hip-related pain demonstrate reduced kinetics at the hip and ankle during terminal stance of gait. *Gait & Posture*. 2023 Jul 26. DOI: 10.1016/j.gaitpost.2023.07.284
88. Sadeghian SM,* Lewis CL, Shefelbine SJ. Can pelvic tilt cause cam morphology? A computational model of proximal femur development mechanobiology. *Journal of Biomechanics.* 2023 Jul 4;157:111707. DOI: 10.1016/j.jbiomech.2023.111707
87. Sadeghian SM,* Li X, Arthurs O, Lewis CL, Shefelbine SJ. Neonatal hip loading in developmental dysplasia: finite element simulation of proximal femur growth and treatment. *The Musculoskeletal Journal of Hospital for Special Surgery*. 2023 Nov;19(4):418-27.
86. Sara LK,* Lewis CL. Rehabilitation phases, precautions, and mobility goals following total hip arthroplasty. *The Musculoskeletal Journal of Hospital for Special Surgery*. 2023 Aug 15:15563316231192980.
85. Jochimsen KN, Kim JS, Jayabala P, Lawrence C, Lewis CL, Prather H, Bostrom MP. AF/HSS Workshop summary: Hip osteoarthritis is an important distinct research target, part 3 – Rehabilitation and exercise. *The Musculoskeletal Journal of Hospital for Special Surgery*. 2023 Nov;19(4):447-52. https://doi.org/10.1177/15563316231192098
84. Lewis CL, Segal NA, Rabasa G, LaValley MP, Williams GN, Nevitt MC, Lewis CE, Felson DT, Stefanik JJ. Hip abductor weakness and its association with new or worsening knee pain: the MOST study. *Arthritis Care & Research.* 2023 May 23. DOI: 10.1002/acr.25160.
83. Ling DI, Hannafin J, Prather H, Skolnik H, Chiaia TA, de Mille P, Lewis CL, Casey E. First findings from the Women's Soccer Health Study: from head to toe. *Sports Medicine (Auckland, N.Z.).* 2023 May. DOI: 10.1007/s40279-023-01860-x. PMID: 37195359; PMCID: PMC10191093.
82. Graber KA,* Halverstadt AL,* Gill SV, Kulkarni V, Lewis CL. The effect of trunk and shank position on the hip-to-knee moment ratio in a bilateral squat. *Physical Therapy in Sport*. 2023 Mar 20;61:102-107. DOI: 10.1016/j.ptsp.2023.03.005. Epub ahead of print. PMID: 37001335.
81. Costello KE,* Felson DT, Jafarzadeh SR, Guermazi A, Roemer FW, Segal NA, Lewis CE, Nevitt MC, Lewis CL, Kolachalama VB, Kumar D. Gait, physical activity and tibiofemoral cartilage damage: a longitudinal machine learning analysis in the Multicenter Osteoarthritis Study. *British Journal of Sports Medicine* Published Online First: 03 March 2023. DOI: 10.1136/bjsports-2022-106142
80. Dijkstra HP, Mc Auliffe S, Ardern CL, Kemp JL, Mosler AB, Price A, Blazey P, Richards D, Farooq A, Serner A, McNally E, Mascarenhas V, Willy RW, Stankovic I, Oke JL, Khan KM, Glyn-Jones S, Clarke M, Greenhalgh T; Young Athlete's Hip Research (YAHiR) Collaborative. Infographic. Oxford consensus on primary cam morphology and femoroacetabular impingement syndrome-natural history of primary cam morphology to inform clinical practice and research priorities on conditions affecting the young person's

hip. *British Journal of Sports Medicine*. 2023 Mar;57(6):382-384. DOI: 10.1136/bjsports-2022-106094. Epub 2023 Jan 17. PMID: 36650034; PMCID: PMC9985723. (Member of Young Athlete's Hip Research (YAHiR) Collaborative).

79. Hartigan E, McAuley JA, Lawrence M, Clarenbach M, Sterling J, Quirion E, Lewis CL. Clinical measures differ in women with self-reported stress urinary incontinence who did and did not leak during jumping jack task. *Journal of Women's Health Physical Therapy.* Accepted 12/28/2022.
78. Dijkstra HP, Mc Auliffe S, Ardern CL, Kemp JL, Mosler AB, Price A, Blazey P, Richards D, Farooq A, Serner A, McNally E, Mascarenhas V, Willy RW, Oke JL, Khan KM, Glyn-Jones S, Clarke M, Greenhalgh T; Young Athlete's Hip Research (YAHiR) Collaborative. Oxford consensus on primary cam morphology and femoroacetabular impingement syndrome: part 2-research priorities on conditions affecting the young person's hip*. British Journal of Sports Medicine*. 2022 Dec 6;57(6):342–58. DOI: 10.1136/bjsports-2022-106092. Epub ahead of print. PMID: 36588402; PMCID: PMC9985764. (Member of Young Athlete's Hip Research (YAHiR) Collaborative).
77. Dijkstra HP, Mc Auliffe S, Ardern CL, Kemp JL, Mosler AB, Price A, Blazey P, Richards D, Farooq A, Serner A, McNally E, Mascarenhas V, Willy RW, Oke JL, Khan KM, Glyn-Jones S, Clarke M, Greenhalgh T; Young Athlete's Hip Research (YAHiR) Collaborative. Oxford consensus on primary cam morphology and femoroacetabular impingement syndrome: part 1-definitions, terminology, taxonomy and imaging outcomes. *British Journal of Sports Medicine*. 2022 Dec 6;57(6):325–41. DOI: 10.1136/bjsports-2022-106085. Epub ahead of print. PMID: 36588401; PMCID: PMC9985727. (Member of Young Athlete's Hip Research (YAHiR) Collaborative).
76. Grosklos M,* Lewis CL, Jochimsen K, Perry J, Ellis TJ, Vasileff WK, Elwood M, Di Stasi S. Females with hip-related pain display altered lower limb mechanics compared to their healthy counterparts in a drop jump task. *Clinical Biomechanics*. 2022 Dec 1; 100: 105812.
75. Corrigan P,* Felson DT, Lewis CL, Neogi T, LaValley MP, Gross KD, Nevitt MC, Lewis CE, Torner JC, Stefanik JJ. Relation of temporal asymmetric stance times during walking to two-year knee pain outcomes in those with mild-to-moderate unilateral knee pain: an exploratory analysis from the Multicenter Osteoarthritis Study. *Arthritis Care & Research.* 2022 Oct 27. DOI: 10.1002/acr.25050
74. Kim D,* Lewis CL, Silverman A, Gill SV. Change in dynamic balance control in adults with obesity across walking speeds. *Journal of Biomechanics.* 2022 Nov; 144:111308. DOI: 10.1016/j.jbiomech.2022.111308
73. Lewis CL, Uemura K, Atkins PR, Lenz AL, Fiorentino NM, Aoki SK, Anderson AE. Patients with cam-type femoroacetabular impingement demonstrate increased hip instability with low flexion activities: a dual fluoroscopy model. *Journal of Orthopaedic Research*. 2023 Jan;41(1):161-9. Published Online First: 2022 Mar 24. DOI: 10.1002/jor.25332
72. Ismail KK,* Lewis CL. Effect of simulated changes in pelvic tilt on hip joint forces. *Journal of Biomechanics.* 2022 Apr 1;135:111048. DOI: 10.1016/j.jbiomech.2022.111048
71. Kim D,* Lewis CL, Gill SV. The effect of obesity on whole-body angular momentum during steady-state walking. *Gait & Posture*. 2022 May 1;94:93-101. doi: 10.1016/j.gaitpost.2022.02.029
70. Jochimsen KN,* Brown-Taylor L,* Perry J, Glaws K, Lewis CL, Ryan J, Di Stasi S. Biomechanical measure of clinician-defined unsteadiness during a forward stepdown task in individuals post-arthroscopy for femoroacetabular impingement syndrome. *Clinical Biomechanics.* 2022;93:105586; DOI: 10.1016/j.clinbiomech.2022.105586
69. Li JS,* Tsai TY, Clancy MM, Lewis CL, Felson DT, Li G. Cartilage contact characteristics of the knee during gait in individuals with obesity. *Journal of Orthopaedic Research.* 2022 Jan 25. DOI: 10.1002/jor.25288
68. Kim D,* Lewis CL, Gill SV. Effects of obesity and foot arch height on gait mechanics: A cross-sectional study. *PLoS ONE.* 2021 6(11), e0260398.

67. Santos TRT,* Araújo VL,* Khuu A,* Lee S, Lewis CL, Souza TR, Holt KG, Fonseca ST. Effects of sex and walking speed on the dynamic stiffness of lower limb joints. *Journal of Biomechanics*. 2021 Oct 12; 129:110803. PMID: 34688064
66. Lewis CL, Halverstadt AL,* Graber KA,* Perkins Z,* Keiser E,* Belcher H,* Khuu A,* Loverro KL.* Individuals With Pre-arthritic Hip Pain Walk With Hip Motion Alterations Common in Individuals With Hip OA. *Front Sports Act Living*. 2021; 3:719097. PMID: 34505057; PMCID: PMC8421535; DOI: 10.3389/fspor.2021.719097
65. Khuu A,* Loverro KL,* Lewis CL. Muscle activation during single leg squat is affected by position of the nonstance limb. *Journal of Athletic Training.* 2021 Apr 22. PMID: 33887761
64. Graber KL,* Loverro KL,* Baldwin M, Nelson-Wong E, Tanor J,* Lewis CL. Hip and trunk muscle activity and kinematics during walking with and within unilateral weight. *Journal of Applied Biomechanics.* 2021 May 29; 37(4):351-358. DOI:10.1123/jab.2020-0273
63. Costello KE,* Felson DT, Neogi T, Segal NA, Lewis CE, Gross KD, Nevitt MC, Lewis CL, Kumar D. Ground reaction force patterns in knees with and without radiographic osteoarthritis and pain: descriptive analyses of a large cohort (the Multicenter Osteoarthritis Study). *Osteoarthritis Cartilage*. 2021 08; 29(8):1138-1146. PMID: 33757856; PMCID: PMC8319033; DOI: 10.1016/j.joca.2021.03.009
62. Kim D,* Desrochers PC, Lewis CL, Gill SV. Effects of obesity on adaptation transfer from treadmill to over-ground walking. *Applied Sciences,* 2021, 11(5), 2108. DOI: 10.3390/app11052108.
61. Horenstein RE,* Meslier Q, Spada JA, Halverstadt A,* Lewis CL, Gimpel M, Birchall R, Wedatilake T, Fernquest S, Palmer A, Glyn-Jones S, Shefelbine SJ. Measuring 3D growth plate shape: Methodology and application to cam morphology. *Journal of Orthopaedic Research,* 2020 Dec 24. DOI: 10.1002/jor.24972
60. Reiman M, Agricola R, Kemp J, …, Lewis CL, et al. Infographic. Consensus recommendations on the classification, definition and diagnostic criteria of hip-related pain in young and middle-aged active adults from the International Hip-related Pain Research Network, Zurich 2018. *British Journal of Sports Medicine*. 2021 Jan; 55(2):115-117. PMID: 32868314; PMCID: PMC7788225; DOI: 10.1136/bjsports-2020-102219
59. Horenstein RE,* Goudeau YR, Lewis CL, Shefelbine SJ. Using Magneto-Inertial Measurement Units to Pervasively Measure Hip Joint Motion during Sports. Sensors (Basel). 2020 Sep 02; 20(17). PMID: 32887517; PMCID: PMC7506643; DOI: 10.3390/s20174970
58. Booysen N,* Wilson DA,* Lewis CL, Warner MB, Gimpel M, Mottram S, Comerford M, Stokes M. Assessing movement quality using the Hip and Lower Limb Movement Screen: Development, reliability and potential applications. *Journal of Musculoskeletal Research*, 2020, 22.03n04. DOI: doi.org/10.1142/S0218957719500088
57. Brown-Taylor L,* Schroeder B, Lewis CL, Perry J, Hewett TE, Ryan J, Di Stasi S. Sex-specific sagittal and frontal plane gait mechanics in persons post-hip arthroscopy for femoroacetabular impingement syndrome. *Journal of Orthopaedic Research*. 2020 11; 38(11):2443-2453. PMID: 32249962; PMCID: PMC7541416; DOI: 10.1002/jor.24680
56. Araújo VL,* Santos TRT,* Khuu A,* Lewis CL, Souza TR, Holt KG, Fonseca ST. The effects of small and large varus alignment of the foot-ankle complex on lower limb kinematics and kinetics during walking: A cross-sectional study. *Musculoskelet Sci Pract*. 2020 06; 47:102149. PMID: 32174545; PMCID: PMC7266625; DOI: 10.1016/j.msksp.2020.102149
55. Impellizzeri F, Griffin D, Harris-Hayes M, …, Lewis CL, et al. Patient-reported outcome measures for hip-related pain: a review of the available evidence and a Consensus Statement from the International Hip-related Pain Research Network, Zurich 2018. *British Journal of Sports Medicine*, 2020. DOI: 10.1136/bjsports-2019-101456
54. Reiman M, Agricola R, Kemp J, …, Lewis CL, et al. Consensus recommendations on the classification, definition and diagnostic criteria of hip-related pain in young and middle-aged active adults from the International Hip-related Pain Research Network, Zurich 2018. *British Journal of Sports Medicine*. 2020 Jun; 54(11):631-641. PMID: 31959678

53. Mosler A, Kemp JL, King M, …, Lewis CL. Standardised measurement of physical capacity in young and middle-aged active adults with hip-related pain: recommendations from the first International Hip-related Pain Research Network (IHiPRN) meeting, Zurich, 2018. *British Journal of Sports Medicine*. 2020 Jun; 54(12):702-710. PMID: 31857334
52. Sadeghian SM,* Lewis CL, Shefelbine SJ. Predicting growth plate orientation with altered hip loading: potential cause of cam morphology. *Biomech Model Mechanobiol*. 2020 Apr; 19(2):701-712. PMID: 31712938
51. Kemp JL, Risberg MA, Mosler A, …, Lewis CL, et al. Physiotherapist-led treatment for young to middle-aged active adults with hip-related pain: consensus recommendations from the International Hip-related Pain Research Network, Zurich 2018. *British Journal of Sports Medicine*. 2020 May; 54(9):504-511. PMID: 31732651
50. Werner DM, Di Stasi S, Lewis CL, Barrios JA. Test-retest reliability and minimum detectable change for various frontal plane projection angles during dynamic tasks. *Physical Therapy in Sport*, 2019;40:169-176. DOI: 10.1016/j.ptsp.2019.09.011
49. Khuu A,* Lewis CL. Position of the non-stance leg during the single leg squat affects females and males differently. *Human Movement Science*. 2019 Oct; 67:102506. PMID: 31445486; PMCID: PMC6903410; DOI: 10.1016/j.humov.2019.102506;
48. Loverro KL,* Hasselquist L, Lewis CL. Females and males use different hip and knee mechanics in response to symmetric military-relevant loads. *Journal of Biomechanics*. 2019 Oct 11; 95:109280. PMID: 31405526
47. Horenstein RE,* Lewis CL, Yan S,* Halverstadt A,* Shefelbine SJ. Validation of magneto-inertial measuring units for measuring hip joint angles. *Journal of Biomechanics*. 2019 Jun 25; 91:170-174. PMID: 31147099; PMCID: PMC7370255; DOI: 10.1016/j.jbiomech.2019.05.029;
46. Warner MB, Wilson DA,* Herrington L, Dixon S, Power C,* Jones R, Heller MO, Carden P, Lewis CL. A Systematic review of the discriminating biomechanical parameters during the single leg Squat. *Phys Ther Sport*. 2019; 36:78-91. PMID: 30703642. [Corrigendum in 2019; 37:62-63.]
45. Loverro KL,* Khuu A,* Kao PC, Lewis CL. Kinematic variability and local dynamic stability of gait in individuals with hip pain and a history of developmental dysplasia. *Gait & Posture*. 2019 02; 68:545-554. PMID: 30639795; PMCID: PMC8205105; DOI: 10.1016/j.gaitpost.2019.01.007
44. Li JS,* Tsai TY, Clancy MM, Li G, Lewis CL, Felson DT. Weight loss changed gait kinematics in individuals with obesity and knee pain. *Gait & Posture*. 2019 02; 68:461-465.View Related Profiles. PMID: 30611976; PMCID: PMC6599530; DOI: 10.1016/j.gaitpost.2018.12.031
43. Lewis CL, Khuu A,* Loverro KL.* Gait Alterations in Femoroacetabular Impingement Syndrome Differ by Sex. *Journal of Orthopaedic and Sports Physical Therapy*. 2018 08; 48(8):649-658. PMID: 29787694; PMCID: PMC6576264; DOI: 10.2519/jospt.2018.7913
42. Lewis CL, Loverro KL,* Khuu A.* Kinematic Differences During Single-Leg Step-Down Between Individuals With Femoroacetabular Impingement Syndrome and Individuals Without Hip Pain. *Journal of Orthopaedic and Sports Physical Therapy*. 2018 Apr; 48(4):270-279. PMID: 29510652; PMCID: PMC6570579; DOI: 10.2519/jospt.2018.7794
41. Lewis CL, Foley H,* Lee T,* Berry J. Effect of band position on muscle activity during resisted side-stepping. *Journal of Athletic Training,* 2018:53(11):1071:1081. DOI: 10.4085/1062-6050-46-16
40. Bove AM, Clohisy J, DeWitt J, Di Stasi S, Enseki K, Harris-Hayes M, Lewis CL, Reiman MP, Ryan JM. Cost-effectiveness analysis of hip arthroscopy surgery and structured rehabilitation alone in individuals with hip labral tears: Letter to the editor. *Am J Sports Med*. 2017 Mar; 45(3):NP1-NP2. DOI: 10.1177/0363546517691278
39. Li JS,* Tsai TY, Felson DT, Li G, Lewis CL. Six degree-of-freedom knee joint kinematics in obese individuals with knee pain during gait. *PLoS One*. 2017; 12(3):e0174663.View

Related Profiles. PMID: 28339477; PMCID: PMC5365132;
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38. Lewis CL, Laudicina NM,* Khuu A,* Loverro KL.* The human pelvis: Variation in structure and function during gait. *Anatomical Record* (Hoboken). 2017 Apr; 300(4):633-642. PMID: 28297184; PMCID: PMC5545133; DOI: 10.1002/ar.23552
37. Whittaker JL, Booysen N, de la Motte S, Dennett L, Lewis CL, Wilson D, McKay C, Warner M, Padua D, Emery CA, Stokes M. Predicting sport and occupational lower extremity injury risk through movement quality screening: a systematic review. *British Journal of Sports Medicine*. 2017 Apr; 51(7):580-585. PMID: 27935483; PMCID: PMC5568888; DOI: 10.1136/bjsports-2016-096760
36. Felson DT, Niu J, Quinn EK, Neogi T, Lewis C, Lewis CE, Frey Law L, McCulloch C, Nevitt M, LaValley M. Multiple Nonspecific Sites of Joint Pain Outside the Knees Develop in Persons With Knee Pain. *Arthritis Rheumatol*. 2017 Feb; 69(2):335-342.View Related Profiles. PMID: 27589036; PMCID: PMC5292971; DOI: 10.1002/art.39848
35. Stracciolini A, Yen YM, d'Hemecourt PA, Lewis CL, Sugimoto D. Sex and growth effect on pediatric hip injuries presenting to sports medicine clinic. *J Pediatr Orthop B*. 2016 Jul; 25(4):315-21. PMID: 27058819; PMCID: PMC4889549; DOI: 10.1097/BPB.0000000000000315
34. Gill SV, Ogamba M, Lewis CL. Effects of additional anterior body mass on gait. *BMC Pregnancy Childbirth*. 2016 May 16; 16:109. PMID: 27185179; PMCID: PMC4869205; DOI: 10.1186/s12884-016-0893-0
33. Dwyer MK, Lewis CL, Hanmer AW, McCarthy JC. Do Neuromuscular Alterations Exist for Patients With Acetabular Labral Tears During Function? *Arthroscopy*. 2016 Jun; 32(6):1045-52. PMID: 27129378; PMCID: PMC5568890; DOI: 10.1016/j.arthro.2016.03.016
32. Khuu A,* Foch E, Lewis CL. Not all single leg squats are equal: A biomechanical comparison of three variations. *International Journal of Sports Physical Therapy*. 2016 Apr; 11(2):201-11. PMID: 27104053; PMCID: PMC4827363
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29. Yen YM, Lewis CL, Kim YJ. Understanding and Treating the Snapping Hip. *Sports Med Arthrosc.* 2015 Dec; 23(4):194-9. PMID: 26524554; PMCID: PMC4961351; DOI: 10.1097/JSA.0000000000000095
28. Berry JW, Lee TS,* Foley HD,* Lewis CL. Resisted Side Stepping: The Effect of Posture on Hip Abductor Muscle Activation. *Journal of Orthopaedic and Sports Physical Therapy*. 2015 Sep; 45(9):675-82. PMID: 26161629; PMCID: PMC4951090; DOI: 10.2519/jospt.2015.5888
27. Lewis CL, Foch E, Luko MM,* Loverro KL,* Khuu A.* Differences in Lower Extremity and Trunk Kinematics between Single Leg Squat and Step Down Tasks. *PLoS One*. 2015; 10(5):e0126258. PMID: 25955321; PMCID: PMC4425598; DOI: 10.1371/journal.pone.0126258
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25. Lewis CL, Khuu A,* Marinko LN. Postural correction reduces hip pain in adult with acetabular dysplasia: A case report. *Manual Therapy.* 2015 Jun; 20(3):508-12. PMID: 25731688; PMCID: PMC4410069; DOI: 10.1016/j.math.2015.01.014

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21. Gill SV, Lewis CL, DeSilva JM. Arch height mediation of obesity-related walking in adults: A cross-sectional examination of contributors to physical activity limitations. *Physiology Journal,* 2014; vol. 2014, Article ID 821482, 8 pages. DOI:10.1155/2014/821482.
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Manuscripts in Review / Revision

9. Patel JR,* Grosklos M,* Lewis CL, Di Stasi S. Impacts of altered gluteus maximus strength on the magnitude and direction of hip joint contact forces during simulations of gait. *PLoS ONE.*
8. LaCross J,* Brizzolara K, Weber M, Lewis CL. Acetabular dysplasia: a clinical review. *Journal of Athletic Training.*
7. Ahn N, Haischer M, Lewis CL, Kipp K. Relative muscular effort in the older adults during the sit-to-stand task: Monitoring neuromuscular reserve and movement limitations. *Clinical Biomechanics.*
6. Grosklos M,* Patel JR, Lewis CL, Di Stasi S. Simulated iliopsoas strengthening increases hip joint forces during gait. *Journal of Biomechanics.*
5. James KA, Neogi T, Felson DT, Corrigan P, Lewis CL, Davis IS, Bacon KL, Torner JC, Lewis CE, Nevitt MC. Association of walking cadence to changes in knee pain and physical function: The Multicenter Osteoarthritis Study. *Osteoarthritis and Cartilage.*
4. Grosklos M,* Patel JR, Ouellette N, Perry J, Patel JB, Fernandes S, Di Stasi S, Lewis CL. To scale or not to scale? An investigation of strength scaling in musculoskeletal models of walking gait. *PLoS ONE.*
3. Rao R,* Sara LK,* Perkins Z,* Dwyer M, Lewis CL. Altered gait kinematics in females with hip pain exist at peaks and throughout the gait cycle. *Clinical Biomechanics.*
2. Ahn N, Lewis CL, Kipp K. Joint-specific contributions to vertical and horizontal center of mass velocity during a sit-to-stand task depend on age. *Journal of Biomechanics*.
1. James KA, Neogi T, Felson DT, Corrigan P, Lewis CL, Davis IS, Bacon KL, Torner JC, Lewis CE, Nevitt MC, Stefanik JJ. Association of walking cadence to changes in knee pain and physical function: the Multicenter Osteoarthritis Study. *Arthritis Care & Research.*

Selected Peer-reviewed Abstracts

134. Lewis CL, van Buuren MM, Perkins Z,* Riedstra NS, Tang J, Felson D, Lewis CE, Segal NA, Nevitt M, Agricola R, Lynch JA, Lindner C, Bacon KL, Morgan EF. Association between SSM-defined hip shape and the development of hip osteoarthritis: the Multicenter Osteoarthritis Study. 2024 OARSI World Congress on Osteoarthritis. Vienna, Austria, Apr 18-21, 2024.
133. Sara LK,* Lewis CL. Sagittal plane hip position affects magnitude of hip rotation range of motion. Poster presentation, American Physical Therapy Association's Combined Sections Meeting. Boston, MA, Feb 15-17, 2024.
132. Ebisuzaki B,* Pierce AT,* Perkins ZE,* Di Stasi S, Lewis CL. Relationship between hip joint loading and pain in individuals with femoroacetabular impingement syndrome. Poster presentation, American Physical Therapy Association's Combined Sections Meeting. Boston, MA, Feb 15-17, 2024.
131. Sara LK,* Felson DT, Rabasa G, LaValley M, Segal N, Lynch J, Lewis CE, Stefanik JJ, Lewis CL. Peak forces during walking and pain worsening of the knee: the Multicenter Osteoarthritis Study. Poster presentation, American Physical Therapy Association's Combined Sections Meeting. Boston, MA, Feb 15-17, 2024.
130. Thomas PY, Grosklos M,* Friedberg G, Lewis CL, Fanning J, Di Stasi S. Pain variability is associated with self-reported function but not physical activity in femoroacetabular impingement syndrome. Platform presentation, American Physical Therapy Association's Combined Sections Meeting. Boston, MA, Feb 15-17, 2024.
129. LaCross JA,* Brizzolara KJ, Weber MD, Thompson MC, Lewis CL. Kinematic variability and outcome measures in females with acetabular dysplasia: a comparative analysis. Poster presentation, American Physical Therapy Association's Combined Sections Meeting. Boston, MA, Feb 15-17, 2024.
128. Murthy T,* Renfro S,* Grover S,* Perkins ZE,* Lewis CL. Effect of plantar flexion moment reversal on ground reaction force and center of mass. Poster presentation, American Physical Therapy Association's Combined Sections Meeting. Boston, MA, Feb 15-17, 2024.
127. Syu FY,* Perkins ZE,* Lewis CL. Differences in characteristics among females with hip pain using different strategies to increase walking speed. Poster presentation, American Physical Therapy Association's Combined Sections Meeting. Boston, MA, Feb 15-17, 2024.
126. Hutchinson KJ, Lewis CL, Awad LN. Can cadence be used as a proxy measure for intensity when walking post-stroke? Platform presentation, American Physical Therapy Association's Combined Sections Meeting. Boston, MA, Feb 15-17, 2024.
125. Price SK,* Stefanik JJ, Willson JD, Lewis CL, Davis IS, Felson DT, Corrigan P. Changes in Knee Joint Contact Forces during Prolonged Walking in Adults with Knee Osteoarthritis. Poster presentation, American Physical Therapy Association's Combined Sections Meeting. Boston, MA, Feb 15-17, 2024.
125. Corrigan P, Lewis CL, Costello K, Kumar D, Felson D, Neogi T, Frey Law L, LaValley M, Nevitt M, Lewis CE, Stefanik JJ. Relation of pain sensitivity to forces while walking in adults with and without knee pain: The Multicenter Osteoarthritis (MOST) Study. Poster presentation, Annual Meeting of the American College of Rheumatology, San Diego, CA, Nov 10-15, 2023.
124. Sara LK,* Felson DT, LaValley MP, Rabasa G, Lewis CE, Lynch JA, Segal NA, Guermazi A, Roemer F, Stefanik JJ, Lewis CL. The association of peak force and loading rates during walking with MRI-based structural worsening of the knee: The Multicenter Osteoarthritis Study. Poster presentation, Annual Meeting of the American College of Rheumatology, San Diego, CA, Nov 10-15, 2023.
123. Kratzer AL,* Lewis CL. Increased ankle pushoff alters frontal plane hip mechanics. Platform presentation, American Society of Biomechanics Annual Meeting, Knoxville, TN, Aug 8-11, 2023.
122. Syu FY,* Perkins Z,* Lewis CL. Strategies for increasing gait speed in females with hip pain. Poster presentation, American Society of Biomechanics Annual Meeting, Knoxville, TN, Aug 8-11, 2023.

121. Rao R,* Sara LK,* Lewis CL. Hip moments differ by walking speed – but not group – in individuals with and without hip pain. Platform presentation, American Society of Biomechanics Annual Meeting, Knoxville, TN, Aug 8-11, 2023.
120. Price SK, Stefanik JJ, Lewis CL, Davis IS, Felson DT, Corrigan P. Changes in lower extremity work during prolonged walking in individuals with knee osteoarthritis. Poster presentation, American Society of Biomechanics Annual Meeting, Knoxville, TN, Aug 8-11, 2023.
119. Ling DI, Hannafin J, Prather H, Skolnik H, Chiaia T, de Mille P, Lewis CL, Casey E. First Findings From The Women's Soccer/Football Health Study: From Head To Toe. Podium Presentation, ISAKOS Congress, Boston, MA, June 18-21, 2023.
118. Ling DI, Hannafin J, Prather H, Skolnik H, Chiaia T, de Mille P, Lewis CL, Casey E. First Findings From The Women's Soccer Health Study: From Head To Toe. Track Session Presentation, International Female Athlete Conference, Boston, MA, June 14-16, 2023.
117. James K,* Neogi T, Felson D, Corrigan P, Lewis C, David I, Bacon K, Torner J, Nevitt M, Stefanik J. Relation of walking cadence to changes in knee pain: the Multicenter Osteoarthritis Study. *2023 World Congress on Osteoarthritis,* Denver, CO, March 17-20, 2023.
116. Corrigan P,* Lewis C, Costello K, Guermazi A, Roemer F, Kumar D, Felson D, Bacon K, Neogi T, LaValley M, Nevitt M, Torner J, Stefanik J. Asymmetric ground reaction forces while walking are not associated with unilateral to bilateral knee osteoarthritis progression: the Multicenter Osteoarthritis Study. *2023 World Congress on Osteoarthritis,* Denver, CO, March 17-20, 2023.
115. Kumar D, Wang N, Torabian K, Lee S, Frey-Law L, Carlesso LC, Housdorff JM, Gazit E, Costello KE, Lewis CL, Stefanik JJ, Segal NA, Lewis CE, Nevitt MC, Neogi T. Gait and changes in nociceptive function over 2 years in people with knee osteoarthritis: the Multicenter Osteoarthritis Study. *2023 World Congress on Osteoarthritis,* Denver, CO, March 17-20, 2023.
114. Cidambi V,* Perkins Z,* Graber K,* Rao R,* Lewis CL. Effect of non-stance limb positioning on single leg squat kinetics. *Combined Sections Meeting of the American Physical Therapy Association,* San Diego, CA, February 23-25, 2023.
113. Reedy D, Grosklos M,* Fanning J, Lewis CL, Friedberg G, Di Stasi S. Momentary relationships between physical activity and pain in persons with femoroacetabular impingement syndrome. *Combined Sections Meeting of the American Physical Therapy Association,* San Diego, CA, February 23-25, 2023.
112. Iftikhar Y, Grosklos M,* Friedberg G, Lewis CL, Fanning J, Di Stasi S. Feasibility of ecological momentary assessments and accelerometry to study activity-pain relationships in femoroacetabular impingement syndrome. *Combined Sections Meeting of the American Physical Therapy Association,* San Diego, CA, February 23-25, 2023.
111. Le HM, d'Hemecourt P, Jackson S, Whitney K, Millis MB, Wuerz TH, Kiapour AM, Lewis CL, Straccoiolini A. Evaluating femoroacetabular posterior translation with dynamic hip ultrasonography. *Pediatric Research in Sports Medicine Society (PRiSM),* Denver, CO, February 2-4, 2023.
110. Corrigan P,* Lewis C, Costello K, Guermazi A, Roemer F, Kumar D, Felson D, Bacon K, Neogi T, LaValley M, Nevitt M. Three-dimensional Ground Reaction Force Symmetry Metrics Largely Fail to Explain Cartilage Worsening in the Contralateral Knee in Persons with Unilateral Knee Osteoarthritis: The Multicenter Osteoarthritis Study. *ACR Convergence 2022,* Philadelphia, PA, November 10-14, 2022.
109. Lewis CL, Perkins Z,* Graber KA,* Halverstadt AL,* Keiser E,* Belcher H,* Stewart K,* Dwyer M, Khuu A.* Altered gait kinematics in females with variations in bone and labral structure of the hip. *9th World Congress of Biomechanics,* Taipei, Taiwan, July 10-14, 2022.
108. Rao R,* Perkins Z,* Dwyer M, Lewis CL. Females with acetabular dysplasia and labral tears walk with decreased hip extension across time series. *Annual Meeting of the Gait & Clinical Movement Analysis Society*, virtual, June 7-8, 2022.

107. Friedberg G, Grosklos M, Fagin M, Kuhn C, Vasileff K, McCamey K, Lewis CL, Fanning J, Di Stasi S. Preliminary feasibility study of physical activity-pain relationships in individuals with femoroacetabular impingement syndrome. *Academic Association of Physiatrist's Annual Meeting,* New Orleans, LA, May 24-28, 2022.
106. Corrigan P, Felson DT, Neogi T, Lewis CL, Torner JC, Nevitt M, Lewis CE, Stefanik JJ. Foot or ankle pain as a risk factor for worsening knee pain: the multicenter osteoarthritis (MOST) study. *Combined Sections Meeting of the American Physical Therapy Association*, San Antonio, Texas, February, 2022.
105. Cidambi V,* Ghaisarnia A,* Lewis CL. Does pelvic drop in the single leg squat predict pelvic drop in walking. *Combined Sections Meeting of the American Physical Therapy Association*, San Antonio, Texas, February, 2022.
104. Lewis CL, Halverstadt AL,* Graber KA,* Perkins Z,* Keiser E,* Belcher H,* Khuu A.* Individuals with pre-arthritic hip pain walk with hip motion alteration common in individuals with hip OA. *ACR Convergence 2021,* virtual, November 5 – 9, 2021.
103. Costello KE, Felson DT, Jafarzadeh SR, Segal NA, Lewis CE, Nevitt M, Lewis CL, Kolachalama VB, Kumar D. Using Machine Learning to Predict Medial Knee Cartilage Worsening Over 2 Years Using Gait and Physical Activity: The MOST Study. *ACR Convergence 2021,* virtual, November 5 – 9, 2021.
102. Corrigan P,* Felson DT, Neogi T, Lewis CL, Thomas, Torner JC, Nevitt MC, Lewis CE, Stefanik JJ. Relation of foot and ankle pain to worsening knee pain accounting for widespread pain: the MOST study. *ACR Convergence 2021,* virtual, November 5 – 9, 2021.
101. Stefanik JJ, Felson DT, Lewis CL, Rabasa G, Guermazi A, Roemer, Lynch, Lewis CE, Segal NA. Relation of knee extensor power to worsening cartilage damage in the knee: The MOST Study. *ACR Convergence 2021,* virtual, November 5 – 9, 2021.
100. Ismail KK,* Lewis CL. Effect of changes in estimated pelvic tilt on hip joint forces. *Virtual 45th Meeting of the American Society of Biomechanics,* August 10-13, 2021.
99. Ismail KK,* Lewis CL. Hip joint forces in individuals with femoroacetabular impingement syndrome. *Virtual 45th Meeting of the American Society of Biomechanics,* August 10-13, 2021.
98. Halverstadt A,* Graber KA,* Chavva S,* Gill S, Lewis CL. Effect of trunk and shank angle on hip-to-knee moment ratio in a bilateral squat. *Virtual 45th Meeting of the American Society of Biomechanics,* August 10-13, 2021.
97. Corrigan P,* Felson DT, Lewis CL, Gross KD, Nevitt MC, Lewis CE, Torner JC, Stefanik JJ. Influence of peak impact force magnitudes and symmetry on the progression from unilateral to bilateral knee pain: the MOST study. *2021 Osteoarthritis Research Society International World Congress,* virtual, April 29 – May 1, 2021.
96. Ismail K,* Lewis CL. Effect of changes in estimated pelvic tilt on hip joint forces. *Rocky Mountain American Society of Biomechanics,* virtual, April 2, 2021.
95. Halverstadt A,* Graber KA,* Chavva S,* Gill S, Lewis CL. Effect of trunk and shank angle on hip-to-knee moment ratio. *Rocky Mountain American Society of Biomechanics,* virtual, April 2, 2021.
94. Tanor J,* Lewis CL. Effect of unilateral ankle foot orthoses on ankle and knee joint kinetics. *Rocky Mountain American Society of Biomechanics,* virtual, April 2, 2021.
93. Chavva S,* Halverstadt A,* Tanor J,* Lewis CL. Use of momentum during sit-to-stand is associated with a lower knee-to-hip ration during bilateral squat. *Combined Sections Meeting of the American Physical Therapy Association*, virtual, February, 2021.
92. Halverstadt A,* Chavva S,* Gill SV, Lewis CL. Effect of trunk and shank position on hip-to-knee moment ratio in a bilateral squat. *Combined Sections Meeting of the American Physical Therapy Association*, virtual, February, 2021.
91. Hartigan EH, McAuley JA, Lawrence M, Lewis CL. Significant predictors of self-reported stress urinary incontinence in women. *Combined Sections Meeting of the American Physical Therapy Association*, virtual, February, 2021.

90. Hartigan EH, McAuley JA, Lawrence M, Lewis CL. Jumping jacks in women with and without stress urinary incontinence during two bladder conditions. *Combined Sections Meeting of the American Physical Therapy Association*, virtual, February, 2021.
89. Corrigan P,* Felson DT, Lewis CL, Gross KD, Nevitt MC, Lewis CE, Torner JC, Stefanik JJ. In those with unilateral frequent knee pain, between limb differences in stance time during walking increase the risk of pain in the other knee: The MOST study. *ACR Convergence 2020,* Virtual, November 5 – 9, 2020.
88. Lewis CL, Segal NA, Stefanik JJ, Chen X, Williams GN, Nevitt MC, Lewis CE, Felson DT. Hip abductor strength and its association with new or worsening knee pain: the MOST study. *ACR Convergence 2020,* Virtual, November 5 – 9, 2020.
87. Loverro KL,* Saltzman E, Lewis CL. Females have greater local dynamic stability than males when walking with military relevant load. *Virtual 44th Meeting of the American Society of Biomechanics*, August 4 – 7, 2020.
86. Lewis CL, Uemura K, Atkins PR, Lenz AL, Fiorentino NM, Aoki SK, Anderson AE. Bone-to-bone distance changes are larger in patients with cam femoroacetabular impingement syndrome. *Virtual 44th Meeting of the American Society of Biomechanics*, August 4 – 7, 2020.
85. Horenstein RE,* Goudeau YR, Spada JA, Lewis CL, Shefelbine SJ. Using magneto-inertial measurements units to measure hip joint motion during sport practices. *SB3C: Summer Biomechanics, Bioengineering, and Biotransport Conference,* Vail, CO, June 17 – 20, 2020. (Virtual presentation due to COVID-19)
84. Corrigan P,* Felson DT, Lewis CL, Gross KD, Nevitt MC, Lewis CE, Torner JC, Stefanik JJ. In those with unilateral frequent knee pain, between limb differences in stance time during walking increase the risk of pain in the other knee: The MOST study. *Osteoarthritis Research Society International (OARSI) 2020 World Congress*, Vienna, Austria, April 30 – May 3, 2020. (Canceled due to COVID-19)
83. Kumar D, Costello KE, Segal N, Williams GN, Liu F, Gross D, Lewis CE, Nevitt M, Lewis CL, Felson DT. Lower quadriceps power is related with flatter ground reaction force patterns during walking in women: the Multicenter Osteoarthritis study. *Osteoarthritis Research Society International (OARSI) 2020 World Congress*, Vienna, Austria, April 30 – May 3, 2020. (Canceled due to COVID-19)
82. Lewis CL, Segal NA, Stefanik JJ, Chen X, Williams GN, Nevitt MC, Lewis CE, Felson DT. Hip abductor strength and its association with new or worsening knee pain: the MOST study. *Osteoarthritis Research Society International (OARSI) 2020 World Congress*, Vienna, Austria, April 30 – May 3, 2020. (Canceled due to COVID-19)
81. Costello KE, Felson DT, Kolachalama V, Lewis CL, Liu F, Gross KD, Segal NA, Lewis CE, Nevitt MC, Kumar D. Flatter ground reaction force patterns are associated with incident knee pain over two years: the Multicenter Osteoarthritis study (MOST). *Osteoarthritis Research Society International (OARSI) 2020 World Congress*, Vienna, Austria, April 30 – May 3, 2020. (Canceled due to COVID-19)
80. Graber K,* Loverro KL,* Nelson-Wong EJ, Baldwin M, Lewis CL. Hip abductor activity and kinematics of the pelvis during walking with and without unilateral weight. *Combined Sections Meeting of the American Physical Therapy Association*, Denver, CO, February 2020.
79. Horenstein RE,* Goudeau YR, Spada JA, Lewis CL, Shefelbine SJ. Application of magneto-inertial measurement units to measure hip joint motion during elite adolescent sport practices at high risk for cam morphology. *XXVII Conference of the International Society of Biomechanics and the American Society of Biomechanics (ISB/ASB 2019),* Calgary, Canada, August, 2019.
78. Horenstein RE,* Lewis CL, Yan S,* Halverstadt A,* Shefelbine SJ. Validation of wireless magneto-inertial sensors to measure hip joint motion. *XXVII Conference of the International Society of Biomechanics and the American Society of Biomechanics (ISB/ASB 2019),* Calgary, Canada, August, 2019.

77. Loverro KL,* Hasselquist L, Lewis CL. Females use greater positive hip work than males in response to military-relevant loads. *XXVII Conference of the International Society of Biomechanics and the American Society of Biomechanics (ISB/ASB 2019),* Calgary, Canada, August, 2019.
76. Horenstein RE,* Meslier Q, Spada JA, Nakasone A, Devismes M, Lewis CL, Gimpel M, Birchall R, Wedatilake T, Fernquest S, Palmer A, Glyn-Jones S, Shefelbine SJ. 3D growth plate shape: a quantification method and application to detecting early changes preceding cam morphology. *XXVII Conference of the International Society of Biomechanics and the American Society of Biomechanics (ISB/ASB 2019),* Calgary, Canada, August, 2019.
75. Costello KE, Felson DT, Neogi T, Segal N, Lewis CE, Gross KD, Nevitt N, Lewis CL. Ground reaction force patterns in knees with and without pain and radiographic osteoarthritis: descriptive analyses from a large cohort study. *Osteoarthritis Research Society International (OARSI) World Congress,* Toronto, Canada, May, 2019.
74. Kumar D, Costello KE, Neogi T, Lewis CE, Segal N, Gross D, Nevitt M, Lewis CL. Sex and race related differences in ground reaction forces during walking and interactions with knee pain and osteoarthritis in a large cohort. *Osteoarthritis Research Society International (OARSI) World Congress,* Toronto, Canada, May, 2019.
73. French HP, Lewis CE, Sun X, Segal N, Lewis CL, Neogi T. Relationship between hip/low back symptoms and pain sensitization in people with symptomatic knee osteoarthritis: the Multicenter Osteoarthritis (MOST) study. *Osteoarthritis Research Society International (OARSI) World Congress,* Toronto, Canada, May, 2019.
72. Tanor J,* Khuu A,* Lewis CL. The effects of early push-off on hip and ankle kinetics. *Gait and Clinical Movement Analysis Society*, Frisco, TX, March, 2019.
71. Loverro KL,* Hasselquist L, Lewis CL. Hip mechanics in females during gait are affected by military-relevant loads and speeds. *Gait and Clinical Movement Analysis Society*, Frisco, TX, March, 2019.
70. Li JS,* Tsai TY, Aubin PM, Muir BC, Felson DT, Lewis CL, Li G. Obesity affected cartilage contact locations during gait. *Orthopedic Research Society,* Austin, TX, February, 2019.
69. Horenstein RE, Spada JA, Lewis CL, Shefelbine SJ. Measuring adolescent hip motion during elite sport practices at high risk for cam-type FAI. *Orthopedic Research Society,* Austin, TX, February, 2019.
68. Horenstein RE,* Spada JA, Nakasone A, Devismes M, Lewis CL, Gimbel M, Birchall R, Wedatilake T, Fernquest S, Palmer A, Glyn-Jones S, Shefelbine SJ. Quantifying 3D orientation of the growth plate: application to potential early indicators of cam-type FAI. *Orthopedic Research Society,* Austin, TX, February, 2019.
67. Horenstein RE,* Lewis CL, Yan S,* Halverstadt A,* Shefelbine SJ. Bringing lab-quality measurements closer to the playing field: validation of hip motion measured with MIMUs. *Orthopedic Research Society,* Austin, TX, February, 2019.
66. Lewis CL, Loverro KL,* Khuu A.* Rotation range of motion alterations in individuals with femoroacetabular impingement syndrome are sex-specific. *Orthopedic Research Society,* Austin, TX, February, 2019.
65. Graber KA,* Loverro KL,* Baldwin M, Nelson-Wong E, Lewis CL. Hip muscle activity during walking with and without unilateral weight. *Combined Sections Meeting of the American Physical Therapy Association,* Washington DC, January, 2019.
64. Lewis CL, Marinko LN. Excessive pelvic drop accentuates acetabular dysplasia in an adolescent with hip pain: a case report. *International Society for Hip Arthroscopy (ISHA) Annual Scientific Meeting*, Melbourne, Australia, October, 2018.
63. Loverro KL,* Hasselquist L, Lewis CL. Females and males use different hip mechanics in response to military-relevant loads. *Proceedings of the 2018 Annual Conference of the American Society of Biomechanics,* Rochester, MN, August, 2018.
62. Li JS,* Tsai TY, Li G, Felson DT, Lewis CL. Cartilage contact in obese individuals with and without knee pain. *Proceedings of the 2018 Annual Conference of the American Society of Biomechanics,* Rochester, MN, August, 2018.

61. Yan S,* Khuu A,* Lewis CL. Muscle activity during sidelying hip abduction: a biomechanical analysis. *Proceedings of the 2018 Annual Conference of the American Society of Biomechanics,* Rochester, MN, August, 2018.
60. Loverro KL,* Saltzman E, Hasselquist L, Lewis CL. Local dynamic stability is affected by soldier-relevant torso loads and gait speeds. *American College of Sports Medicine* published in Medicine and Science in Sports and Exercise, 2018:50(5):816. Orland, FL, May, 2018.
59. Lewis CL, Khuu A,* Loverro KL.* Gait alterations in femoroacetabular impingement syndrome differ by sex. *Combined Sections Meeting of the American Physical Therapy Association,* New Orleans, LA, February 2018.
58. Applegate A,* Lewis CL. Altered movement patterns in individuals with FAIS during deep squat. *Presented at the 2017 APTA of MA Annual Conference,* Norwood, MA, October 2017.
57. Khuu A,* Loverro KL,* Lewis CL. Hip lateral rotator muscle force during variations of the single leg squat. *Proceedings of the 2017 Annual Conference of the American Society of Biomechanics,* Boulder, CO, August, 2017.
56. Loverro KL,* Khuu A,* Lewis CL. Kinematic variability and local dynamic stability in individuals with hip dysplasia. *Proceedings of the 2017 Annual Conference of the American Society of Biomechanics,* Boulder, CO, August, 2017.
55. Li JS,* Tsai TY, Li G, Felson DT, Lewis CL. Articular cartilage contact during gait in obese individuals with knee pain. *Proceedings of the 2017 Annual Conference of the American Society of Biomechanics,* Boulder, CO, August, 2017.
54. Brown L,* Hoffman J, Glaws K, Lewis CL, McNally MP, Ryan J, Hewett TE, Di Stasi S. Biomechanical measures of clinician-defined balance impairments in persons post-arthroscopy for femoroacetabular impingement syndrome. *Proceedings of the 2017 Annual Conference of the American Society of Biomechanics,* Boulder, CO, August, 2017.
53. Lewis CL, Khuu A,* Loverro KL.* Kinematic differences during single leg step down between individuals with FAI and healthy controls. *Proceedings of the 2017 Annual Meeting of the Orthopaedic Research Society,* San Diego, CA, March, 2017.
52. Brown L,* Hoffman J, Lewis CL, Glaws K, McNally MP, Hewett TE, Ryan J, Di Stasi S. Relationship between hip function and quality of movement during a forward step-down in persons with femoroacetabular impingement syndrome. *Proceedings of the Combined Sections Meeting of the American Physical Therapy Association*, San Antonio, TX, February, 2017.
51. Patel S,* Ciccodicola EM,* Khuu A,* Lewis CL. A comparison of kinematics, kinetics and muscle activity during single leg squat with varying trunk positions. *Proceedings of the Combined Sections Meeting of the American Physical Therapy Association*, San Antonio, TX, February, 2017.
50. Ciccodicola EM,* Kiernan D, Khuu A,* Holt KG, Lewis CL. Hip muscle moments are decreased by an increased ankle pushoff in barefoot walking. *Proceedings of the 40th Annual Meeting of the American Society of Biomechanics*, Raleigh, NC, August, 2016.
49. Loverro KL,* Khuu A,* Ciccodicola EM,* Lewis CL. Variability of kinematic and temporal-spatial gait parameters in individuals with hip dysplasia. *Proceedings of the 40th Annual Meeting of the American Society of Biomechanics*, Raleigh, NC, August, 2016.
48. Khuu A,* Loverro KL,* Lewis CL. Kinematic differences during single leg squat and step down tasks in individuals with unilateral hip pain and healthy controls. *Proceedings of the 40th Annual Meeting of the American Society of Biomechanics*, Raleigh, NC, August, 2016.
47. Kiernan D, Khuu A,* Di Stasi S, Lewis CL. Lower limb contributions to support moment throughout single leg squat. *Proceedings of the 40th Annual Meeting of the American Society of Biomechanics*, Raleigh, NC, August, 2016.
46. Khuu A,* Loverro KL,* Lewis CL. Kinematic differences between sides in individuals with unilateral hip pain during single leg squat and step down tasks. *Biomechanics and Neural Control of Movement,* Mt. Sterling, OH, June, 2016.

45. Loverro KL,* Khuu A,* Ciccodicola EM,* Lewis CL. Gait variability in individuals with hip dysplasia. *Biomechanics and Neural Control of Movement,* Mt. Sterling, OH, June, 2016.
44. Lewis CL. Khuu A.* Sex-specific differences in movement pattern during the single leg squat. *Proceedings of the 2016 Annual Meeting of the Orthopaedic Research Society,* Orlando, FL, March, 2016.
43. Brown L, Lewis CL. Student and faculty learning styles in a DPT program. *Proceedings of the Combined Sections Meeting of the American Physical Therapy Association*, Anaheim, CA, February, 2016.
42. Marinko LN, Lewis CL. Neuromuscular control deficits in an adolescent with mild acetabular dysplasia and hip pain. *Proceedings of the Combined Sections Meeting of the American Physical Therapy Association*, Anaheim, CA, February, 2016.
41. Luko MM,* White M,* Khuu A,* Holt KG, Lewis CL. Correlation between foot pressure measures and eversion during barefoot walking. *Proceedings of the Combined Sections Meeting of the American Physical Therapy Association*, Anaheim, CA, February, 2016.
40. Kim C, Niu J, Lewis CL, Clancy M, Felson DT, and Guermazi A. Hip osteoarthritis as the cause for knee osteoarthritis in the Multicenter Osteoarthritis Study. *Proceedings of the 2015 ACR/ARHP Annual Meeting,* San Francisco, CA, November, 2015.
39. Lewis CL, Foch E, Luko MM,* Loverro KL,* Khuu A.* Differences in lower extremity, pelvic and trunk kinematics between single leg squat and step down tasks. *Proceedings of the 39th Annual Meeting of the American Society of Biomechanics*, Columbus, OH, August, 2015.
38. Loverro KL,* Khuu A,* Lewis CL. Muscle activation during single leg squat is affected by position of the non-stance limb. *Proceedings of the 39th Annual Meeting of the American Society of Biomechanics*, Columbus, OH, August, 2015
37. Khuu A,* Foch E, Lewis CL. Differences in hip and knee mechanics during three variations of the single leg squat in healthy females. *Proceedings of the 2015 Annual Meeting of the Orthopaedic Research Society,* Las Vegas, NV, March, 2015.
36. Li JS,* Tsai TY, Brenzel K, Ahn YJ, Felson DT, Li G, Lewis CL. Three-dimensional knee joint kinematics in obese individuals with knee pain during treadmill gait. *Proceedings of the 2015 Annual Meeting of the Orthopaedic Research Society,* Las Vegas, NV, March, 2015.
35. Khuu A,* Foch E, Lewis CL. Not all squats are created equal: a comparison of three single leg squats. *Proceedings of the Combined Sections Meeting of the American Physical Therapy Association*, Indianapolis, IN, February, 2015.
34. Foley H,* Lee T,* Berry J, Lewis CL. Effect of theraband placement and stance position on hip abductor muscle activity. *Proceedings of the Combined Sections Meeting of the American Physical Therapy Association*, Indianapolis, IN, February, 2015.
33. Lee T,* Foley H,* Berry J, Lewis CL. Resisted side-stepping: which leg works more? *Proceedings of the Combined Sections Meeting of the American Physical Therapy Association*, Indianapolis, IN, February, 2015.
32. Stefanik JJ, Gross KD, Felson DT Niu J, White DK, Guermazi A, Roemer FW, Lewis CE, Segal NA, Nevitt MC, Lewis CL. The relation of step length to MRI features of osteoarthritis in the patellofemoral joint: The MOST Study. *ACR/ARHP Annual Meeting*, Boston, MA, November, 2014.
31. Khuu A,* Foch E, Lewis CL. Three variations of the single leg squat: a comparison of hip kinematic. *Proceedings of World Congress of Biomechanics,* Boston, MA, July, 2014.
30. Foch E, Khuu A,* Williamson A,* Lewis CL. Differences in hip rotation range of motion between sitting and supine. *Proceedings of World Congress of Biomechanics,* Boston, MA, July, 2014.
29. Ogamba M,* Gill SV, Lewis CL. Changes in gait with anteriorly added mass: a pregnancy simulation study. *Proceedings of World Congress of Biomechanics,* Boston, MA, July, 2014.
28. Gill S, Ogamba M,* Lewis CL. Effects of additional anterior body mass on spatio-temporal gait parameters. *Proceedings of the 2014 meeting of the Gait and Clinical Movement Analysis Society (GCMAS)*, Newark, DE, June, 2014.

27. Marinko L, Christie R, Lewis CL. Rehabilitation of a young adult following total hip arthroplasty: 10 years after girdlestone procedure. *Proceedings of the 2014 meeting of the Gait and Clinical Movement Analysis Society (GCMAS)*, Newark, DE, June, 2014.
26. Marinko L, Lewis CL. Rehabilitation of a young adult following total hip arthroplasty 10 years after girdlestone procedure: a case study. *Proceedings of the Combined Sections Meeting of the American Physical Therapy Association*, Las Vegas, NV, February, 2014.
25. Monaghan G,* Hsu WH,* Lewis CL, Saltzman E, Hamill J, Holt K. Forefoot angle at initial contact determines amplitude of forefoot and rearfoot eversion in during running. *Proceedings of the Combined Sections Meeting of the American Physical Therapy Association*, Las Vegas, NV, February, 2014.
24. Marinko L, Lewis CL. Postural correction reduces hip pain in young adult with acetabular dysplasia: a case study. *Proceedings of the Combined Sections Meeting of the American Physical Therapy Association,* San Diego, CA, January, 2013.
23. Lewis CL. Altered hip movement in females with hip pain during single leg step down. *Annual Meeting of the American Society of Biomechanics,* Gainesville, FL, August, 2012.
22. Monaghan G,* Lewis CL, Hsu WH, Saltzman E, Hamill J, and Holt KG. Forefoot orientation angle determines duration and amplitude of pronation during walking. *Annual Meeting of the American Society of Biomechanics,* Gainesville, FL, August, 2012.
21. Caron RR,* Wagenaar RC, Lewis CL, Saltzman E, and Holt KG. Vertical trajectory of center of mass maintained with increased vertical stiffness while carrying load. *Annual Meeting of the American Society of Biomechanics,* Gainesville, FL, August, 2012.
20. Lewis CL. Altered hip movement in women with hip pain during single leg step down. *Proceedings of the 2012 meeting of the Gait and Clinical Movement Analysis Society,* Grand Rapids, MI, May, 2012.
19. Marinko L, Lewis CL. Lumbopelvic stability deficits in a patient with surgical treatment of Femoroacetabular Impingement. *Proceedings of the Combined Sections Meeting of the American Physical Therapy Association,* Chicago, IL, February, 2012.
18. Lewis CL, Bill E. Effect of increased pushoff during gait on hip joint forces. *Proceedings of the 2011 meeting of the Gait and Clinical Movement Analysis Society,* Bethesda, MD, April, 2011.
17. Lewis CL, Bill E. Hip joint forces during gait with normal and with increased ankle pushoff. *Proceedings of the Combined Sections Meeting of the American Physical Therapy Association,* New Orleans, LA, February, 2011.
16. Lewis CL, Ferris DP. Hip joint kinetics while walking with a robotic hip orthosis. *Proceedings of the Combined Sections Meeting of the American Physical Therapy Association*, San Diego, CA, February, 2010.
15. Kao PC,* Lewis CL, Ferris DP. Plantar flexor reflex response to a perturbation during human walking maintains ankle joint torque pattern. *33rd Annual Meeting of the American Society of Biomechanics,* State College, PA, August, 2009.
14. Lewis CL, Kao PC,* Ferris DP. Invariant ankle moment patterns with plantar flexor assistance from a powered ankle orthosis. *Proceedings of the North American Congress on Biomechanics,* Ann Arbor, MI, August, 2008.
13. Kao PC,* Lewis CL, Ferris DP. Motor response during unexpectedly reduced plantar flexor torque provided by a powered orthosis during walking. *Proceedings of the North American Congress on Biomechanics,* Ann Arbor, MI, August, 2008.
12. Silver S,* Lewis CL, Palmieri-Smith R. Comparison of muscle activity during common lower extremity rehabilitation exercises. *Proceedings of the North American Congress on Biomechanics,* Ann Arbor, MI, August, 2008.
11. Charnock BL, Lewis CL, Garrett WE, Queen RM. Adductor longus vulnerability in the maximal effort soccer kick. *Proceedings of ACSM's 55th Annual Meeting,* Indianapolis, IN, May, 2008.
10. Lewis CL, and Ferris DP. Altered ankle pushoff during gait. *Dynamic Walking 2008 Meeting*, Delft, The Netherlands, May, 2008.

9. Lewis CL, Ferris DP. Walking with increased push-off decreases hip moment. *Proceedings of the 31st Annual Meeting of the American Society of Biomechanics*, Palo Alto, CA, August, 2007.
8. Lewis CL, Sahrmann SA, Moran DW. Effect of hip rotation on anterior hip force during straight-leg raising. *Proceedings of the 30th Annual Meeting of the American Society of Biomechanics,* Blacksburg, VA, September, 2006.
7. Lewis CL, Sahrmann SA, Moran DW. Modeling of anterior hip joint forces during straight-leg raising. *Journal of Orthopaedic and Sports Physical Therapy.* Jan 2006; 36(1):A47.
6. Lewis CL, Sahrmann SA, Moran DW. Walking in greater hip extension increases predicted anterior hip joint reaction forces. *Proceedings of XXth Congress of ISB, 29th Annual Meeting of the ASB*, Cleveland, OH, July, 2005.
5. Lewis CL, Sahrmann SA. Timing of muscle activation during prone hip extension. *Journal of Orthopaedic and Sports Physical Therapy.* Jan 2005; 35(1):A56-7.
4. Lewis CL, Chen J,* Sahrmann SA. Variations in hip extensor muscle participation during hip extension in the prone position. *Journal of Orthopaedic and Sports Physical Therapy.* Jan 2005; 35(1):A58-9.
3. Chen J,* Lewis CL, Mueller MJ, Sahrmann SA. Effect of passive leg support on muscle activation during prone hip extension. *Journal of Orthopaedic and Sports Physical Therapy.* Jan 2005; 35(1):A35.
2. Lewis CL, Sahrmann SA, Moran DW. Predicted hip joint reaction forces during prone hip extension with varying contribution from the gluteal muscles. *Proceedings of the 28th Annual Meeting of the American Society of Biomechanics*, Portland, OR, September, 2004.
1. Lewis CL, Sahrmann SA, Mueller MJ. Hip flexion moment reduced when walking with less hip extension range of motion. *Journal of Orthopaedic and Sports Physical Therapy*. Jan 2004;34(1):A26.

Invited Presentations

International

18. “Investigating hip “instability”: perspectives and possible interventions.” Movement System Monthly. Virtual presentation translated into Japanese in real time. Mar 23, 2024.
17. “Introduction to Hip Kinematic Studies” ISHA Basis Research Webinar: Principles of Conducting Basic Science and Biomechanical Studies, virtual, Apr 15, 2023.
16. “Hip shape: a complex interaction of movement and morphology.” Cardiff University Symposium. Sept 19, 2022 (postponed due to Queen Elizabeth’s funeral)
15. “Keynote: Interaction between movement and hip morphology.” Sports Medicine New Zealand Conference 2019, Dunedin, New Zealand, November, 2019.
14. “Let’s just squat and see.” Sports Medicine New Zealand Conference 2019, Dunedin, New Zealand, November, 2019.
13. “The complex interaction of hip morphology and movement.” School of Physical Therapy, University of Otago, Dunedin, New Zealand, October, 2019.
12. “Current management of structural hip ‘pathology’.” 29th Annual Conference of the International Association for Dance Medicine & Science, Montreal, Quebec, Canada, October, 2019.
11. “Biomechanical and neuromuscular considerations in athletes with hip pain.” 1st Sportfisio & Swiss Sports Med Conference, Bern, Switzerland, November, 2018.
10. “Hip Masterclass.” 2018 Sports Medicine Australia (SMA) Conference, Perth, Western Australia, October, 2018.
9. “Interaction of Movement & Morphology: better function follows better movement.” Hip pain in young active adults: *where are we now?* Melbourne, Australia, October, 2018.
8. “Using motion analysis and modeling to enlighten physical therapy.” La Trobe University, Melbourne, Australia, October, 2018.

7. “Movement screening round the hip.” International Society for Hip Arthroplasty (ISHA) 2018 Annual Scientific Meeting, Melbourne, Australia. October, 2018.
6. “What can be achieved with physiotherapy / physical therapy?” Annual Scientific Meeting of the International Society for Hip Arthroscopy, Cambridge, England, September, 2015.
5. “Neuromuscular rehabilitation of FAI.” Annual Scientific Meeting of the International Society for Hip Arthroscopy, Cambridge, England, September, 2015.
4. “Normal neuromuscular function of the hip.” Annual Scientific Meeting of the International Society for Hip Arthroscopy, Cambridge, England, September, 2015.
3. “Diary of a joint: adaptation of hip structure over time.” Physios in Sport (UK) Biennial Conference. Glasgow, Scotland, UK, October, 2013.
2. “Hip Structure and Sport: what we can and cannot change.” The International Festival of Athletics Coaching, Glasgow, Scotland, UK, October, 2013.
1. “Interaction of the athlete with the environment: Lower limb mechanics and injury.” Profile of a Modern Day Athlete, Glasgow, Scotland, UK, October, 2013.

National

72. “Hip form and function: insights into the interplay between shape and movement.” Congdon School of Health Sciences Distinguished Lecture Series, High Point University, High Point, NC, Nov 8, 2023.
71. “Post-hab: Rehabilitation following THR” 2023 HipOACS Meeting, Arthritis Foundation & Hospital for Special Surgery, New York, NY, Feb 17-18, 2023.
70. “Qualitative (functional movement patterns) versus quantitative (objective data) treatment of movement in hip pain.” HSS Rehabilitation Hip Preservation Certification course, virtual, Sept 16-17, 2022.
69. “Surgery vs. Rehabilitation for FAIS: Do we have to take sides?” AASPT Annual Meeting & Scientific Conference, Indianapolis, IN, September 22-25, 2021 (Presented virtually).
68. “Pathomechanics of hip impingement” HSS Rehabilitation Hip Preservation Certification course, virtual, Sept 17-18, 2021.
67. “Typical biomechanics of the hip” HSS Rehabilitation Hip Preservation Certification course, virtual, Sept 17-18, 2021.
66. “Hip-Related Pain: Where are We Now? An Update from the 1st International Hip Pain Research Network Consensus Meeting.” American College of Sports Medicine’s Annual Meeting, virtual, June 1-5, 2021.
65. “It Takes Two to Tango: Creating Successful Trainee-Mentoring Relationships.” 2021 American Association for Anatomy Annual Meeting, virtual, April 27-30, 2021.
64. “Hip-Related Groin Pain: Can Movement Advance Our Knowledge Beyond the Consensus?” Combined Sections Meeting of the American Physical Therapy Association, virtual, February/March, 2021.
63. “Biomechanics Matters 2.0: The Foundation for Changing Movement.” Combined Sections Meeting of the American Physical Therapy Association, virtual, February/March, 2021.
62. “Effect of mechanical load on skeletal adaptation in phylogeny and ontogeny.” SB^3C: Summer Biomechanics, Bioengineering, and Biotransport Conference, Vail, CO. (Presentation canceled due to COVID-19)
61. “A Multi-Task, Multi-center Motion Analysis Protocol: Reliability assessment in Healthy Individuals.” 25th Annual Gait & Clinical Movement Analysis Society Meeting, West Chester, PA, June 1-5, 2020. (Canceled due to COVID-19)
60. “Hip-related Pain: Where are We Now? An Update from the 1st International Hip Pain Research Network Consensus Meeting.” American College of Sports Medicine’s 67th Annual Meeting, San Francisco, CA, May 26-30, 2020. (Canceled due to COVID-19)
59. “It Takes Two to Tango: Creating Successful Trainee-Mentoring Relationships.” 2020 American Association for Anatomy Annual Meeting, San Diego, CA, April 4-7, 2020. (Canceled due to COVID-19)

58. “Physical therapy for individuals with femoroacetabular impingement syndrome.” Twin Cities Sports Medicine Conference, Minneapolis, MN, October, 2019.
57. “Keynote: The complex interaction of movement and morphology in hip pain.” Twin Cities Sports Medicine Conference, Minneapolis, MN, October, 2019.
56. “Hip morphology and movement patterns: rethinking hip pain in athletes.” Symposium on Motor Control in Biomechanics at the 2019 American College of Sports Medicine (ACSM) Annual Meeting, Orlando, FL, May, 2019.
55. “Biomechanics matters: solving clinical problems with biomechanics.” Combined Sections Meeting of the American Physical Therapy Association, Washington DC, January, 2019.
54. “Hip arthroscopy, rehabilitation, and return to function.” Combined Sections Meeting of the American Physical Therapy Association, Washington DC, January, 2019.
53. “The hip: muscle and joint interactions and clinical application.” Hospital for Special Surgery: Advances in Hip Preservation: Surgery, Rehabilitation and Sports Performance. New York, NY, September, 2018.
52. “Current Research in the Interaction of Hip Structure and Movement.” Hospital for Special Surgery: Advances in Hip Preservation: Surgery, Rehabilitation and Sports Performance. New York, NY, September, 2018.
51. “Hip biomechanics.” 6th Annual New England Sports & Orthopedic Rehabilitation Summit: Hip Management, Preservation, Rehabilitation, and Surgery Throughout the Lifespan, Providence, RI, April, 2018.
50. “Reinterpreting the role of strength in movement in individuals with hip pain.” Combined Sections Meeting of the American Physical Therapy Association, New Orleans, LA, February, 2018.
49. “Gait and motion: interaction of structure and movement.” Hip and Pelvis Structure: A Cross-Pollination Collaborative, Seattle, WA, October, 2017.
48. “Movement analysis and gait retraining.” Part of: Osteoarthritis examined from full human to cellular perspectives: ASB-OARSI symposium sympatico. Annual Conference of the American Society of Biomechanics, Boulder, CO, August, 2017.
47. “Neuromuscular control of the hip.” 2017 Northern New England Athletic Training Conference, Manchester, NH, June, 2017.
46. “Biomechanical evaluation and treatment of the young athlete’s hip.” American College of Sports Medicine’s 64th Annual Meeting, 8th World Congress of Exercise is Medicine® and World Congress on the Basic Science of Exercise and the Brain, Denver, CO, May, 2017.
45. “Neuromuscular rehabilitation of FAI.” From FAI to OA: Updates on the changing landscape of the conservative management of hip pain, Shirley Ryan AbilityLab, Chicago, IL, April, 2017.
44. “Assessing neuromuscular control of the hip.” From FAI to OA: Updates on the changing landscape of the conservative management of hip pain, Shirley Ryan AbilityLab, Chicago, IL, April, 2017.
43. “Femoroacetabular impingement syndrome: alterations in movement. Movement System Impairment (MSI) Retreat, Columbia, IL, March, 2017.
42. “Biomechanics and neuromuscular control of the hip.” The Ohio State University Wexner Medical Center 6th Annual Hip Symposium, Columbus, OH, December, 2016.
41. “Hip pain in the runner.” The 2016 Micheli Lecture: The Science of Running: Injury and Prevention, Boston, MA, September, 2016.
40. “Why task matters: How small movement modifications make big differences.” International Society for Hip Arthroplasty (ISHA) 2016 Annual Scientific Meeting, San Francisco, CA. September, 2016.
39. “Functional outcomes assessment in patients with femoroacetabular impingement.” Gait & Clinical Movement Analysis Society 2016 Annual Conference, Memphis, TN, May, 2016.
38. “What kind of year has it been? Updates on hip muscle activation during movement”. Movement System Impairment (MSI) Retreat, Columbia, IL, March, 2016.

37. “Rethinking femoroacetabular impingement: Is it really abnormal? Is surgery really necessary?” Combined Sections Meeting of the American Physical Therapy Association, Anaheim, CA, February, 2016.
36. “Hip evo devo: adaptation of the hip in phylogeny and ontogeny.” Orthopaedic Research Society 2015 Annual Meeting, Las Vegas, NV, March, 2015.
35. “Hip research update: new publications.” Movement System Impairment (MSI) Retreat, Columbia, IL, March, 2015.
34. “Neuromuscular control of the hip: implications throughout the lower extremity.” Biomechanical Approaches to Treating the Lower Extremity & Their Clinical Implications, Boston, MA, February, 2015
33. “Acetabular labral tears revisited: understanding the current evidence and how it shapes our interventions,” Combined Sections Meeting of the American Physical Therapy Association, Indianapolis, IN, February, 2015.
32. “Biomechanical considerations of the hip.” Pediatric and Young Adult Hip Conference, Boston Children’s Hospital, Boston, MA, May, 2014.
31. “Hip structure and implications for rehabilitation.” The New England Sports and Orthopedic Rehabilitation Summit 2014, Advances in Rehabilitation of the Lower Extremity, Providence, RI, April, 2014.
30. “Hip research update: initial findings.” Movement System Impairment (MSI) Retreat, Columbia, IL, March, 2014.
29. “Biomechanical and anatomical considerations in evaluation and treatment of the adult hip.” APTA of MA’s 2013 Annual Conference and Exposition. Boston, MA, October, 2013.
28. “Biomechanical analysis of young adults with hip pain.” Movement System Impairment (MSI) Retreat, Columbia, IL, March, 2013.
27. “Rehab of young adults with intra-articular hip disorders.” Combined Sections Meeting of the American Physical Therapy Association, San Diego, CA, January, 2013.
26. “The controversial role of structure in hip pain.” MGH Sports Medicine Seminar, Boston, MA, April, 2012.
25. “Hip pain in young adults.” Movement System Impairment (MSI) Retreat, Innsbrook, MO, March, 2012.
24. “Changing your gait to save your hip.” Spaulding Hospital Research Seminar, Boston, MA, May, 2011.
23. “Hip joint forces with exercise and gait.” Movement System Impairment (MSI) Retreat, Innsbrook, MO, March, 2011.
22. “Reducing joint forces at the hip.” Kinesiology Department Seminar, University of Massachusetts, Amherst, MA, February, 2011.
21. “Movement pattern differences in young adults with and without hip pain.” Presented at CREST Seminar, Boston University, Boston, MA, February, 2011.
20. “Robotic lower limb exoskeletons for human locomotion.” The 2010 joint meeting of the Gait and Clinical Movement Analysis Society and the European Society of Movement Analysis in Adults and Children (JEGM 2010), Miami, FL, May, 2010.
19. “Altering Hip Mechanics during Ambulation.” The Boston Action Club, Northeastern University, Boston, MA, January, 2010.
18. “Building a robotic lower limb exoskeleton.” American Society of Biomechanics Annual Meeting Tutorial, State College, PA, August, 2009.
17. “Practical applications of biomechanics.” Guest Lecturer for Biological and Behavioral Bases of Human Movement, University of Michigan, Ann Arbor, MI, April, 2009.
16. “Anterior Hip Pain: Ankle, Angles and Ambulation.” Grand Rounds, the Cleveland Clinic, Cleveland, OH, January, 2009.
15. “Altering Hip Mechanics during Ambulation.” PT Research Seminar, Washington University, School of Medicine, St. Louis, MO, January, 2009.
14. “Powered Orthoses for Gait Rehabilitation.” Michigan Orthotics & Prosthetics Association 2008 O & P Educational Seminar, Kalamazoo, MI, June, 2008.

13. “Modification of hip moments during gait.” PT Research Seminar, Washington University, School of Medicine, St. Louis, MO, May, 2007.
12. “Application of musculoskeletal modeling: effect of movement and muscle activation patterns on anterior hip joint forces." Guest Lecturer for Quantitative Physiology, Washington University in St. Louis, Department of Biomedical Engineering, St. Louis, MO, November, 2005.
11. “Using a musculoskeletal model to test the effect of movement and muscle recruitment on anterior hip forces.” Muscle Physiology Laboratory, University of California, San Diego, CA, August, 2005.
10. “Effect of movement and muscle recruitment on anterior hip joint forces.” Sensory Motor Performance Program Laboratory, Rehabilitation Institute of Chicago, Chicago, IL, July, 2005.
9. “Anterior hip forces: effect of movement and muscle recruitment patterns.” Kinesiology Seminar, University of Michigan, Ann Arbor, MI, June, 2005.
8. “Anterior hip forces: effect of movement and muscle recruitment patterns.” PT 2005: Annual Conference & Exposition of the American Physical Therapy Association, Boston, MA, June, 2005.
7. “Motor contributions to musculoskeletal pain syndromes.” Guest Lecturer for Motor Control and Motor Learning, Washington University, Program in Physical Therapy, St. Louis, MO, June, 2005.
6. “Timing of muscle recruitment during prone hip extension in people with and without anterior hip pain.” PT Research Seminar, Washington University, School of Medicine, St. Louis, MO, March, 2005.
5. “Using research (methods) to augment physical therapy evaluation.” Guest Lecturer for Case Integration, Washington University, Program in Physical Therapy, St. Louis, MO, January, 2005.
4. “Altered gait and muscle recruitment leads to increased anterior forces on the acetabulum and anterior hip pain.” PT Research Seminar, Washington University, School of Medicine, St. Louis, MO, March, 2004.
3. “Anterior hip pain: etiology and physical therapy management.” Physical Therapy Seminar, Saint Louis University, School of Allied Health Professions, St. Louis, MO, March, 2003.
2. “Theory on etiology and management of anterior hip pain.” The Marilyn Gossman Graduate Student Seminar, APTA Combined Sections Meeting, Tampa, FL, February, 2003.
1. “Biomechanical modeling of indentation testing and application in nonlinear FEA of the diabetic foot.” PT Research Seminar, Washington University, School of Medicine, St. Louis, MO, March, 2002.

Invited Workshops

5. “Interaction of Movement and Morphology in Hip Pain.” Movement System Monthly (Japanese), virtual, December 20, 2020.
4. “Morphology and the Movement System.” Performance in Motion, virtual due to COVID-19, December 4, 2020.
3. “Anatomic and Biomechanical Considerations in the Evaluation and Treatment of Hip Pain.” Sports Medicine New Zealand Conference 2019, Dunedin, New Zealand, October, 2019.
2. “Movement screening and the hip: the importance of task.” 29th Annual Conference of the International Association for Dance Medicine & Science, Montreal, Quebec, Canada, October, 2019.
1. “Using movement analysis to evaluate and treat individuals with hip pain.” Twin Cities Sports Medicine Conference, Minneapolis, MN, October, 2019.

Research Funding

Grants Pending

1. *ATHENA: Athlete total hip evaluation: normal or arthritic*
   Arthritis Foundation (PI: Cara L. Lewis)
   08/01/2024 – 07/31/2028
   This work aims to identify modifiable risk factors for hip osteoarthritis (OA) in female athletes, a vastly understudied but overaffected population, by using advanced measures of hip health, morphology, and movement to identify and define individuals at elevated risk of early-onset hip OA before irreversible degeneration occurs.
   Role: PI
   Amount: $100,000 (recommended for funding)

2. *The influence of load on pain patterns in femoroacetabular impingement syndrome*
   NIH R01 (MPI: Cara L. Lewis, Stephanie Di Stasi)
   04/01/2025 – 03/31/2030
   This project will investigate the influence of hip joint load (joint moments and contact forces) and physical activity load (activity volume and duration) on real-time pain and real-world pain using both laboratory-based and ecologically valid real-world techniques to inform clinical interventions for individuals with hip pain.
   Role: MPI
   Amount: $3,947,762

Grants Funded (Active)

1. *Hip structure and function in young female athletes*
   NIH R01 AR083148 (PI: Cara L. Lewis)
   06/01/2024 – 05/31/2028
   This observation study is designed to investigate the growth and development of hips in young females, filling a critical knowledge gap on if and when females develop cam morphology.
   Role: PI
   Award Amount: $795,275

2. *Boston University Rheumatology Research Training (BURRT) T32 Program*
   NIH/NIAMS T32 AR080623 (PI: Tuhina Neogi)
   06/01/22-05/31/27
   This training program for postdoctoral trainees mostly consists of Rheumatologists who are interested in entering research careers. Training in both clinical and laboratory research has been extremely successful and is oversubscribed by trainees who come not only from rheumatology backgrounds, but also increasingly from physical therapy or other fields.
   Role: Training faculty
   Award Amount: $1,447,464

3. *Association between hip shape and hip symptoms*
   Boston University Clinical & Translational Science Institute (PI: Cara L. Lewis)
   04/01/2023 – 12/31/2024
   This project will investigate the relationship between hip shape and hip symptoms in a large observational cohort of older adults.
   Role: PI
   Award Amount: $50,000

4. *Scientist Development Award*
   Rheumatology Research Foundation (PI: Patrick Corrigan)
   1/1/22-12/31/24
   Asymmetric walking and as risk factors for bilateral knee osteoarthritis
   The goal of this proposal is to determine the role of asymmetric walking mechanics as a risk factor for knee osteoarthritis and knee pain. It also offers the PI training in epidemiology and longitudinal study designs and analyses.
   Role: Mentor
   Award Amount: $124,935

5. *Etiology of cam morphology in adolescent athletes*
   Rheumatology Research Foundation R Bridge Funding (PI: Cara L. Lewis)
   08/15/2020 – 6/30/2024
   Through this career development bridge funding, we focus on understanding why the bone shape underlying FAI syndrome develops. We investigate the loading characteristics that contribute to the future development of cam morphology, and how changes in the three-dimensional shape of the growth plate precede and contribute to cam morphology.
   Role: PI
   Award Amount: $200,000

6. *Influence of unilateral knee pain on contralateral knee loading: implications for the development of bilateral knee pain and osteoarthritis*
   Academy of Orthopaedic Physical Therapy New Investigator Award (PI: Patrick Corrigan)
   05/01/2021 – 11/30/2024
   The goals of this proposal are to determine changes in knee joint loading after lidocaine injection in participants with knee pain and relation of gait asymmetry to future knee pain and osteoarthritis.
   Role: Co-I
   Award Amount: $30,000

7. *Relation of walking cadence to knee joint loading, pain, and function*
   Foundation for Physical Therapy Research (PI: Joshua Stefanik)
   05/01/22 – 10/31/2024
   The current proposal will investigate whether a simple gait modification strategy (i.e., increased walking cadence) is associated with improvements in knee joint loading, pain, and function.
   Role: Collaborator
   Award Amount: $40,000

8. *Boston University CCCR*
   NIH P30 AR072571 (PI: David T. Felson)
   09/11/2019 – 07/31/2024
   The Boston University Core Center for Clinical Research will provide broad clinical research methods expertise to a large multidisciplinary group of investigators whose research focuses on osteoarthritis and gout with a secondary emphasis on scleroderma, spondyloarthritis, osteoporosis and musculoskeletal pain.
   Role: Core faculty
   Award Amount: $3,643,188

Grants Funded (Completed)

1. *Why does bone shape predict hip OA? Building a biomechanical understanding of bone shape measures*
   Boston Musculoskeletal Clinical Research Collaboratory (PIs: Cara L. Lewis, Elise F. Morgan)
   09/01/2021 – 08/31/2022
   This project will investigate hip macrostructure (shape) and microstructure to understand how the observed variation translates to changes in stress and risk of future osteoarthritis.
   Role: PI
   Award Amount: $22,500

2. *Movement screening and modification in individuals with femoroacetabular impingement syndrome*
   NIH R03 AR072808 (PI: Cara L. Lewis)
   03/01/2018 – 02/28/2022
   The purpose of this study is to test typical movement patterns in individuals with FAIS and determine if these patterns can be easily modified when given simple cues. Additionally, this study aims to shift the work from the 3D motion capture to the clinic setting.
   Role: PI
   Award Amount: $164,625

3. *Multicenter Osteoarthritis Study (MOST) Second Renewal – Boston University*
   NIH U01 AG018820 (PI: David T. Felson)
   04/01/2015 – 05/31/2022
   This renewal of the multicenter research study focuses on new prevention opportunities and also on novel ways to understand and ultimately limit the impact of knee arthritis on the daily lives of those affected.
   Role: Co-I
   Award Amount: $4,686,647

4. *Role of asymmetric walking mechanics on knee pain and the progression from unilateral to bilateral osteoarthritis*
   NIH Ruth L. Kirschstein NRSA Postdoctoral Fellowship (F32) (PI: Patrick Corrigan)
   07/1/2021 – 06/30/2023
   The goals of this proposal are to determine the relation of 1) gait asymmetry to future knee osteoarthritis and 2) pain to lower extremity energetics. Additionally, it will offer the PI protected time to gain training in epidemiology, longitudinal analyses, and application of biomechanical principles to a large knee osteoarthritis cohort.
   Role: Collaborator
   Award Amount: $141,756
   This grant was ultimately not accepted due to Dr. Corrigan obtaining a tenure-track faulty position (scored 9th percentile, funding line 22nd percentile)

5. *Effect of femoroacetabular impingement (FAI) on hip motion in young adults*
   NIH K23 AR063235 (PI: Cara L. Lewis)
   9/1/2013 – 8/31/2018 (no cost extension 8/31/2019)
   This mentored patient-oriented research career development award focuses specifically on movement patterns which may contribute to pain in young adults with FAI in order to develop effective non-surgical treatment options.
   Role: PI
   Award Amount: $605,000

6. *Movement patterns in individuals with femoroacetabular impingement syndrome*
   Mini-sabbatical: Boston University Clinical and Translational Science (BU-CTSI) (PI: Cara L. Lewis)
   05/01/2017 – 09/31/2018
   This funding supports collaborative work at the University of Utah using high-speed dual fluoroscopy to investigate hip joint arthrokinematics simultaneously with whole body osteokinematics.
   Role: PI
   Award Amount: $6,000

7. *Lower extremity movement screening in individuals with musculoskeletal hip pain*
   Integrated Pilot Grant Program: Boston University Clinical and Translational Science Institute (BU-CTSI) (PI: Cara L. Lewis)
   01/01/2018 – 12/31/2018
   This pilot award is to establish the reliability and validity of a video-based assessment of a movement screen in individual with hip pain and individuals without hip pain.
   Role: PI
   Award Amount: $19,820

8. *Identifying cases of patellofemoral joint osteoarthritis and their hip impairments*
   American College of Rheumatology, Investigator Award (PI: Joshua Stefanik)
   7/1/2014 – 6/30/2017
   It is well accepted that hip impairments contribute to the development of patellofemoral pain syndrome. However, it is not known if these same impairments are involved in the development of patellofemoral osteoarthritis. The goal of this project is to better understand the role of hip dysfunction in patellofemoral osteoarthritis.
   Role: Co-mentor
   Award Amount: $375,000

9. *Harmonising hip-specific motion analysis and screening protocols*
   Arthritis Research UK Centre For Sport, Exercise and Osteoarthritis (PI: Cara L. Lewis)
   01/01/2016 – 02/28/2017
   The overall objective of this fellowship is to harmonise motion capture and hip screening test protocols to facilitate multi-center investigation of hip disease in adolescents and young adults. Multi-center collaboration is essential to advancing the understanding of pre-arthritic hip disease and to develop evaluation and intervention strategies to slow or prevent the progression to hip osteoarthritis.
   Role: Fellow
   Award Amount: £4,390

10. *Sex-specific movement differences in young adults with and without hip pain*
    NIH R21 AR061690 (PI: Cara L. Lewis)
    8/1/2012 – 7/31/2014
    This study aims to determine sex-specific differences in movement patterns in adults with hip pain in order to develop sex-specific rehabilitation and prevention programs. This study is an extension of the internally funded project with the same name.
    Role: PI
    Award Amount: $275,000

11. *Clinical Planning Grant on Motion Analysis in Femoroacetabular Impingement*
    Pediatric Orthopaedic Society of North America (POSNA), Clinical Trials Planning Grant (PI: David Podeszwa)
    6/1/2014 – 5/31/2015

The goal of this clinical trials planning grant is to develop a multi-center clinical trial to assess the biomechanics of patients with femoroacetabular impingement during functional and activity specific task.
Role: Co-Investigator
Award Amount: $25,480

12. *Compliant Nonlinear Quasi-Passive Knee Orthotic*
NSF SBIR IIP-1152605 (PI: John Rokosz)
3/1/2012 – 02/28/2014
The goal of this project was to develop a novel non-linear torsion orthotic knee brace.
Role: Co-Investigator
Award Amount: $499,999

13. *Limb-specific differences in movement patterns in people with hip pain*
Boston University Dudley Allen Sargent Research Fund (PI: Cara L. Lewis)
7/1/2012 – 12/31/2013
The aim of this study was to evaluate side-to-side differences in movement patterns in people with hip pain and compare these differences to people without hip pain.
Role: PI
Award Amount: $7,000

14. *Peter Paul Career Development Professorship*
Boston University (PI: Cara L. Lewis)
7/1/2010 – 6/30/2013
The purpose of this funding was to provide salary and research support for three years to promising new faculty who have been at Boston University for less than two years. Only three of these prestigious professorships are awarded each year.
Role: Professor
Award Amount: $120,000

15. *Sex-specific movement differences in young adults with and without hip pain*
Boston University Clinical and Translational Science Award (CTSA) Program KL2
NIH KL2 TR00158 (PI: David Center)
1/1/2011 – 12/31/2012
The goal of this internal mentored career development award was to determine if there are sex-specific differences in movement patterns in young adults with and without hip pain.
Role: Scholar
Award Amount: $92,000

16. *Orthopedic Gait Rehabilitation with a Robotic Hip Exoskeleton*
NIH UL TR00157 (PI: David Center)
9/1/2012 – 4/30/2013
This funding was for pilot work related to a robotic hip exoskeleton which can provide assistance or resistance to hip flexion or extension. The long term aim is to use this device as a rehabilitation tool.
Role: PI
Award Amount: $23,000

17. *Upper limb control of robotic lower limb assistance during walking*
NIH/NICHD F32 HD055010-02 (PI: Cara L. Lewis)
7/10/2007 – 7/9/2009
The original aims of this project were to determine 1) if humans modify upper limb muscle activity and/or movement during treadmill walking to control plantar flexion assistance from

a robotic ankle-foot orthosis (AFO), and 2) if one controller allowed the user to adapt faster or gain more assistance from the AFO than the other controllers. This project was later modified to include the development of a pneumatically powered hip orthosis to test motor adaptation and the interplay between ankle and hip during gait.
Role: Trainee
Award Amount: $96,472

Physical Therapy License

Missouri State Board of Registration for the Healing Arts: 112159

Research Mentoring Experience

Visiting Scholar / Junior Faculty

Helen French, PhD, MSc (2018) Currently Associate Professor in Physiotherapy at the Royal College of Surgeons in Ireland.

Joshua Stefanik, PhD (2013-2017) Currently an Associate Professor at Northeastern University.

Post-doctoral fellow

Lauren Sara, DPT, PhD (2022-present)

Patrick Corrigan, PhD (2019-2021) Currently an Assistant Professor at Saint Louis University.

Eric Foch, PhD (2013-2014) Currently an Associate Professor at Central Washington University.

Doctoral Students (PhD, ScD)

Fang-Yu Syu (Boston University, Rehabilitation Sciences, Dissertation Committee chair, 2022-present)

Avery Kratzer (Boston University, Rehabilitation Sciences, Dissertation Committee chair, 2022-present)

Ria Rao (Boston University, Rehabilitation Sciences, Dissertation Committee chair, 2021-present)

Jennifer Kurz (Texas Woman’s University, Dissertation Committee Member, 2021-2023) Currently a post-doctoral fellow at the University of Michigan.

Danny Shin (Boston University, Rehabilitation Sciences, Dissertation Committee Member, 2017-2022) Currently a post-doctoral fellow at the University of Michigan.

Seyedeh Mahsa Sadeghian (Northeastern University, Mechanical Engineering, Dissertation Committee, 2018-2022) Senior Mechanical Design Engineer at ASML.

Josh Auger (Boston University, Mechanical Engineering, Dissertation Committee Member, 2018-2023) Research Software Developer in the Computational Radiology Laboratory at Boston Children's Hospital.

Joshua Tanor (Boston University, Rehabilitation Sciences, Dissertation Committee Chair, 2017-2021) Currently a Prosthetics and Orthotics Resident at Hanger Orthotics.

Daekyoo Kim (Boston University, Rehabilitation Sciences, Dissertation Committee Member, 2016-2020) Currently an Assistant Professor at Korea University.

Brittany Bingham (Boston University, Rehabilitation Sciences, Dissertation Committee Chair, 2016-2017) Currently practicing Athletic Training.

Rachel Horenstein (Northeastern University, Mechanical Engineering, Dissertation Committee, 2015-2020) Currently a Teaching Assistant Professor at University of Denver.

Kari Loverro (Boston University, Rehabilitation Sciences, Dissertation Committee Chair, 2014-2018) Currently a Portfolio and Technical Advisor on the Biomechanics and Engineering Team at the Combat Capabilities Development Command Soldier Center, Natick, MA.

Jing-Sheng Li (Boston University, Rehabilitation Sciences, Dissertation Committee Chair, 2013-2018) Research Scientist at University of Washington, Seattle, WA.

Anne Khuu (Boston University, Rehabilitation Sciences, Dissertation Committee Chair, 2012-2017) Currently a Data Analyst at Runner Insights, Brooks Sports, Inc., Seattle, WA.
Wen-Hao Hsu (Boston University, Rehabilitation Sciences, Dissertation Committee Member, 2009-2013) Human Factors Engineer, Microsoft, Redmond, Washington.
Gail Monaghan, PT (Boston University, Rehabilitation Sciences, Dissertation Committee Member, 2009-2012) Currently a Lecturer at Boston University and Advanced Clinician at Spaulding Rehabilitation Hospital, Cambridge, MA.
Robert R. Caron (Boston University, Rehabilitation Sciences, Dissertation Committee Member, 2009-2012) Currently Director of Health Sciences at Becker College, Worcester, MA.
Pei-Chun Kao, PT (University of Michigan, Kinesiology, Dissertation Committee Member, 2006-2009) Currently an Associate Professor at University of Massachusetts -- Lowell.

Doctor of Physical Therapy Students (DPT)

Adrien Pierce (Boston University, Physical Therapy Program, 2023-present)
Stephanie Grover (Boston University, Physical Therapy Program, 2023-2024)
Brian Ebisuzaki (Boston University, Physical Therapy Program, 2022-present)
Tulasi Murthy (Boston University, Physical Therapy Program, 2021-2024)
Shavonne Renfro Cox (Boston University, Physical Therapy Program, 2021-2024)
Erin Fleming (Boston University, Physical Therapy Program, 2021-2024)
Kaylyn Stewart (Boston University, Physical Therapy Program, 2020-2023)
Varsha Cidambi (Boston University, Physical Therapy Program, 2019-2022)
Ali Ghaisarnia (Boston University, Physical Therapy Program, 2019-2022)
Emily Schlueter (Boston University, Physical Therapy Program, 2019-2023)
Sharanya Chavva (Boston University, Physical Therapy Program, 2018-2021)
Kerri Graber (Boston University, Physical Therapy Program, 2014-2019)
Sneha Patel (Boston University, Physical Therapy Program, 2013-2017)
Cameron Yeaman (Boston University, Physical Therapy Program, 2015-2016)
Meaghan White (Boston University, Physical Therapy Program, 2015-2016)
Alyssa Williamson (Boston University, Physical Therapy Program, 2010-2016)
Marc Luko (Boston University, Physical Therapy Program, 2010-2016)*
Hanna Foley (Boston University, Physical Therapy Program, 2013-2015)
Theresa Lee (Boston University, Physical Therapy Program, 2013-2015)
Kristin Nassar (Boston University, Physical Therapy Program, 2011-2013)
Adam Linsalata (Boston University, Physical Therapy Program, 2010-2012)
Ashley Rex (Boston University, Physical Therapy Program, 2010-2012)
Jennifer Auyeung (Boston University, Physical Therapy Program, 2010-2011)
Jack Chen (Washington University, Program in Physical Therapy, 2004-2005)

Masters

Karim Ismail (Boston University, Biomedical Engineering, 2020-2021)
Korey Blodgett (Boston University, Athletic Training MS Program, 2019-2020)
Cameron Nurse (Northeastern University, Bioengineering, 2019-2020)

Undergraduate Students

Gabrielle Ferro (Colorado School of Mines, Mechanical Engineering, 2020-2021)
Zoe Perkins (Boston University, Biochemistry and Molecular Biology, 2018-2021)*
Emily Keiser (Boston University, Behavior and Health, 2019-2021)*
Courtney Bonnema (Boston University, Human Physiology, 2020-present)
Hadwin Belcher (Boston University, Human Physiology, 2019-present)*
Eavan DiGiovanni (Boston University, Health Studies, 2019-2020)
Eric Zhang (Boston University, Physical Therapy, 2019-2021)
Minni Bi (Boston University, Health Sciences, 2020)
Isabella Garza (Boston University, Human Physiology, 2017-2021)*
Matthew Figucia (Boston University, Biomedical Engineering, 2018-2019)*
Andrew Faria (Boston University, Biology, 2017-2019)*

Anna Applegate (Boston University, Athletic Training Program, 2016-2018)
Kara Ryan (Boston University, Human Physiology, 2015-2016)*
Pirapon Leo Chaidarun (Boston University, Human Physiology, 2015-2017)
Sherry Yan (Boston University, Biomedical Engineering, 2015-2017)*
Jacob Ferriero (Boston University, Biomedical Engineering, 2014-2017)*
Luke Roberts (Boston University, Human Physiology, 2014-2016)
Carson Garvin (Boston University, Human Physiology, 2014-2015)*
Eva Ciccodicola (Boston University, Health Sciences, 2014-2015)
Brian Zitin (Boston University, Human Physiology, 2014)
Saniya Shah (Boston University, Biomedical Engineering, 2013-2015)
Nathanael Lee (Boston University, Biomedical Engineering, 2013-2014)
Sarah Fernandes (Boston University, Neuroscience, 2012-2014)
Amy Singleton (Boston University, Biomedical Engineering, 2012-2013)
Maureen Ogamba (Boston University, Health Sciences, 2012-2014)*
Ben Huey (Boston University, Biomedical Engineering, 2012-2013)
Rachel Carande (Boston University, Biomedical Engineering, 2012-2013)
Jessica Fraser (Boston University, Biomedical Engineering, 2012-2013)
Kristin Carroll (University of Michigan, Movement Science, 2008-2009)
Sabrina Silver (University of Michigan, Movement Science, 2006-2008)
Becca Stoloff (University of Michigan, Mechanical Engineering, 2006-2007)
* Recipients of UROP Student Research Awards

Visiting Students

Ross Booton (2014) Currently a Senior Research Associate at University of Bristol, Bristol, UK.
Matt Wittstein (2013) Currently an Associate Professor at Elon University, Elon, NC.

Membership in Professional Societies

American College of Rheumatology (ACR) Association of Rheumatology Professionals (ARP)
American Physical Therapy Association (APTA)
American Society of Biomechanics (ASB)
Federation of State Boards of Physical Therapy (FSBPT)
Gait and Clinical Movement Analysis Society (GCMAS)
Orthopaedic Research Society (ORS)

Teaching Experience

HP 151: Introduction to the Health and Rehabilitation Professions (2 credits)
Fall 2009; Spring 2013
HP 565: Biomechanics of Human Movement (4 credits)
Spring 2020, 2023, 2024
HP 737: Instrumentation for Analysis of Motion (4 credits)
Spring 2015
PT 490: Independent Study (1 credit)
Spring 2012
PT 520: Functional Anatomy (4 credits)
Summer 2011-2017
RS 890 Doctoral Seminar (1 credit)
Fall 2020, 2021, 2022, 2023
RS 910 / 911 Directed Readings (variable)
Spring 2013, 2014, 2018-2023; Fall 2014, 2017, 2018, 2022, 2023

Service

Physical Therapy Program

Advising DPT students (~16 students / year)
Academic Practicum (17 students)
Biomechanics Task Force (2009-2010)
Curriculum Committee (2010-2013)

Rehabilitation Sciences Program

Advising PhD students (5 currently, 14 graduated students)
Admissions Committee member (2009-present)
Chair, Human Movement and Adaptation Curriculum Committee (2013-2018)
Steering Committee Member (2016-present)
Director, PhD Program (2019-present)

Department of Physical Therapy & Athletic Training

Chair Search Committee (2009-2011)
Visibility Task Force, Chair (2010-2013)
Sports Medicine Search Committee (2011-2013)
Chair, Junior Tenure Track Faculty Search Committee (2015-2016)
Director, Combined DPT/PhD degree program (2018-present)
Chair, Pediatrics Endowed Chair Search Committee (2020-2022)

Center for Multiscale & Translational Mechanobiology, College of Engineering

Member, Strategic Planning task force (2022-2023)
Member, Executive Committee (2024-present)

Profession

Advanced Item Writer, Federation of State Boards of Physical Therapy (2004-2015)
Chair, multiple sessions of APTA Annual Conference (2010)
Session Moderator, GCMAS Conference (2011)
Member, Eugene Michels Forum Committee Member, Section on Research APTA (2011-2015)
Item Writing Task Force, Federation of State Boards of Physical Therapy (2011-2014)
Session Moderator, ASB Annual Conference (2012)
Abstract Reviewer, GCMAS Annual Conference (2012-present)
Editorial Assistant, ASB Newsletter (2013-2021)
Chair, Eugene Michels Forum Committee Member, Section on Research APTA (2014-2015)
Member, ASB Program Committee (2014)
Chair, Women in Science event, 7th World Congress of Biomechanics (2014)
Abstract Reviewer, ASB Annual Meeting (2015 - 2018)
Nominating Committee Member, ASB (2015-2016)
Analysis Plan and Manuscript Reviewer, Multicenter Osteoarthritis Study (MOST) (2016-present)
Session Moderator, ASB Annual Meeting (2016, 2017)
Abstract Reviewer, ORS Annual Conference (2017, 2018)
Session Moderator, Combined Sections Meeting of the APTA (2017)
International Editorial Review Board (IERB), Journal of Orthopaedic & Sports Physical Therapy (2018-present)
Awards Committee, Biomechanics SIG, Academy of Physical Therapy Research, APTA (2018-2024)
Award Reviewer, ASB Annual Awards (2019)
Secretary, Academy for Physical Therapy Research, APTA (2019-2023)
Editorial Board Member, Physical Therapy & Rehabilitation Journal (2021-present)
Newsletter Editor and Executive Board Member, American Society of Biomechanics (2021-present)
Editorial Advisory Board, Journal of Biomechanics (2021-present)
President-elect, Academy for Physical Therapy Research, APTA (2023-2024)
Session Moderator, Combined Sections Meeting of APTA (2024)
President, Academy for Physical Therapy Research, APTA (2024-present)

Grant Application Reviewer

Missouri Physical Therapy Association (2005)
U.S. Army Medical Research and Materiel Command (2007)
Arthritis and Musculoskeletal and Skin Disease Special Grants Review Committee (AMS), National Institutes of Health, Ad Hoc Member (2016, 2020)
Mechanistic Ancillary Studies to Ongoing Interventional Clinical Trials (R01) ZAR1 YL (M2) 1, National Institutes of Health, Ad Hoc Member (2017)
Center for Scientific Review Special Emphasis Panel ZRG1 F10B-B 20, National Institutes of Health, Panel Member (2017, 2018)
Musculoskeletal Research Center, Washington University (2017)
Dutch Arthritis Society ReumaNederland (2019)
Center for Scientific Review Special Emphasis Panel ZRG1 MOSS-B (82) A, National Institutes of Health, Ad Hoc Member (2020)
Center for Scientific Review Special Emphasis Panel 2020/10 ZHD1 DSR-G (50) 1, National Institutes of Health, Ad Hoc Member (2020)
National Science Foundation Biomechanics and Mechanobiology Program panel reviewer
Mechanistic Ancillary Studies to Ongoing Interventional Clinical Trials (R01) 2022-01, National Institutes of Health, Ad Hoc Member (2021)
Loan Repayment Program (LRP), National Institute of Arthritis and Musculoskeletal and Skin Disease, National Institutes of Health, Ad Hoc Member (2022)
Center for Scientific Review, Musculoskeletal Rehabilitation Sciences Study Section (MRS), National Institutes of Health, Ad Hoc Member (2022)
Center for Scientific Review, Special Emphasis Panel / Scientific Review Group 2023/10 Arthritis and Musculoskeletal and Skin Disease Special Grants Review Committee (AMS), National Institutes of Health, Ad Hoc Member (2023)
Center for Scientific Review, Ancillary Studies to Ongoing Clinical Projects Special Emphasis Panel ZAR1 SP (M1), National Institutes of Health, Ad Hoc Member (2023)

Manuscript Reviewer

American Journal of Physical Medicine & Rehabilitation
Archives of Physical Medicine and Rehabilitation
Arthritic Care & Research
BioMedical Engineering OnLine
BMC Musculoskeletal Disorders
Clinical Anatomy
Clinical Biomechanics
Foot & Ankle International
Journal of Applied Biomechanics
Journal of Athletic Training
Journal of Biomechanics
Journal of Foot and Ankle Research
Journal of Motor Behavior
Journal of Musculoskeletal and Neuronal Interactions
Journal of NeuroEngineering and Rehabilitation
Journal of Orthopaedic and Sports Physical Therapy
Medicine
Medicine & Science in Sports & Exercise
Osteoarthritis and Cartilage
Physical Therapy & Rehabilitation Journal
PM&R
Scandinavian Journal of Medicine and Science in Sports

Sports Health
The Physician and Sportsmedicine
Transactions on Neural Systems and Rehabilitation Engineering