

# Deepak Kumar, PT, PhD

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## Academic Appointments

- 2024-Present **Associate Professor** (*Primary appointment*), Department of Physical Therapy, Sargent College of Health and Rehabilitation Sciences, Boston University, Boston, MA, USA
- 2024-Present **Associate Professor** (*Adjunct appointment*), Department of Health Sciences, Sargent College of Health and Rehabilitation Sciences, Boston University, Boston, MA, USA
- 2018-2024 **Assistant Professor** (*Adjunct appointment*), Department of Health Sciences, Sargent College of Health and Rehabilitation Sciences, Boston University, Boston, MA, USA
- 2017-Present **Assistant Professor** (*Adjunct appointment*), Section of Rheumatology, Department of Medicine, Boston University Chobanian & Avedisian School of Medicine, Boston, MA, USA
- 2016-2024 **Assistant Professor**, Department of Physical Therapy, Sargent College of Health and Rehabilitation Sciences, Boston University, Boston, MA, USA
- 2014-2016 **Assistant Professor**, Division of Physical Therapy, Department of Health Professions, College of Health Professions, Medical University of South Carolina, Charleston, SC, USA
- 2010-2014 **Postdoctoral Researcher**, Musculoskeletal Quantitative Imaging Research Group, Radiology and Biomedical Imaging, University of California, San Francisco, USA

## Academic Affiliations

- 2020-Present **Faculty Affiliate**, Center for Neurophotonics, Boston University, Boston, MA, USA
- 2018 - 2021 **Faculty Affiliate**, Rafik B. Hariri Institute for Computing and Computation Science & Engineering, Boston University, Boston, MA, USA
- 2014 - 2016 **Faculty Affiliate**, Center for Biomedical Imaging, Medical University of South Carolina, Charleston, SC, USA

## Education

- 2006- 2010 **Ph.D. Biomechanics and Movement Science**, Interdisciplinary Program in Biomechanics and Movement Science, University of Delaware, Newark, DE, USA
- 2001 - 2003 **Master of Physical Therapy (Musculo-skeletal)**, Department of Rehabilitation Science, Jamia Hamdard, New Delhi, India
- 1997 - 2001 **Bachelor of Science (Honors) Physical Therapy**, Pt. D.D.U. Institute for the Physically Handicapped, Delhi University, New Delhi, India

## Research Funding (~6.6MM total costs as PI; ~\$11.6MM total)

### Active (~\$5.4MM total costs as PI; ~\$9.0MM total)

**Source:** NIH- NIAMS R21AR083153-01A1

**Title:** Telehealth Exercise and Mindfulness for Pain in knee Osteoarthritis (TEMPO): a Digital Feasibility Study

**Period:** 8/2024-7/2027

**Role:** PI

**Source:** NIH- NIA U19 AG076471 (Project 1)

**Title:** Impaired Exercise-induced Hypoalgesia

**Period:** 6/2023-02/2028

**Role:** MPI Project 1 (Kumar/Neogi/Frey-Law)

**Source:** Rheumatology Research Foundation Innovative Award

**Title:** A multimodal high-tech/high-touch intervention to address racial inequalities in management of chronic knee pain and depressive symptoms

**Period:** 07/2023-06/2025

**Role:** PI

**Source:** NIH-NIAMS P30 AR072571 (PI: Felson)

**Title:** Boston University CCCR

**Period:** 09/2019 – 08/2024

**Role:** Co-I

**Source:** MedRhythms Inc.

**Title:** Music-based, walking rhythm modulating wearable sensor system for people with knee osteoarthritis

**Period:** 11/2022-10/2024

**Role:** PI

**Source:** Adobe

**Title:** Artificial intelligence for biomechanics

**Period:** NA

**Role:** PI

### Completed (~\$1.2 million total costs as PI; ~\$2.6 million total)

**Source:** Pfizer Inc. and Eli Lilly CP223264

**Title:** Wearable Sensor-based Outcomes Following Physical Therapy in Knee Osteoarthritis: A Feasibility Study (WESENS-OA)

**Period:** 11/2020 – 06/2024

**Role:** MPI (Kumar/Neogi)

**Source:** Pfizer ADVANCE 55810247

**Title:** Mindfulness and Exercise for Chronic Pain Management in Knee Osteoarthritis

**Period:** 12/2019-12/2023

**Role:** PI

**Source:** Boston University Neurophotonics Center Seed Award

**Title:** Cortical function during exercise and effect of mindfulness in people with knee osteoarthritis

**Period:** 08/2022-07/2023

**Role:** PI

**Source:** NIH-NIAMS K01 AR069720  
**Title:** Mind Your Walk Intervention for Community-based Management of Knee OA: A Feasibility Study  
**Period:** 08/2017-07/2022  
**Role:** PI

**Source:** NIH-NIAMS R34 AR076625-01A1 (PI: McAlindon)  
**Title:** Long-term Effect of Genicular Nerve Ablation on Knee Pain, Gait, and Joint Structure  
**Period:** 08/2020-07/2021  
**Role:** Site-PI

**Source:** BU Digital Health Initiative and Hariri Institute Pilot Award  
**Title:** Physical activity promotion in people with knee osteoarthritis and comorbidities: A patient-centered mHealth intervention  
**Period:** 2017-2019  
**Role:** PI

**Source:** BU CTSI Pilot Project Award  
**Title:** Quantitative Assessment of Varus Thrust in the Knee Osteoarthritis)  
**Period:** 2017 - 2018  
**Role:** PI

**Source:** BU Evans Center ARC (PI: Borrelli)  
**Title:** Mobile and Electronic Health Affinity Research Collaborative (ME-Health ARC)  
**Period:** 2017-2018  
**Role:** Mentee

**Source:** Rheumatology Research Foundation K-Bridge Award  
**Title:** Feasibility of Mind Your Walk Intervention for Knee OA  
**Period:** 2016-2017  
**Role:** PI

**Source:** Delaware-CTR Pilot Project Award  
**Title:** mhealth Tool to Support Assessment of Community-Based Mindful Walking in Knee OA  
**Period:** 2015 - 2016  
**Role:** PI

**Source:** Delaware-CTR Mentored Research Development Award  
**Title:** Mind Your Walk: Integrative Intervention for Disease Management in Knee Osteoarthritis  
**Period:** 2015 - 2016  
**Role:** PI

**Source:** UCSF Radiology & Biomedical Imaging Seed Grant # 12-05  
**Title:** Gastric bypass surgery induced weight-loss and knee cartilage, meniscus and muscle composition  
**Period:** 2012-2014  
**Role:** PI

**Source:** NIH-NIAMS R01-AR062370 (PI: Souza)  
**Title:** Contact Mechanics, Neuromuscular Control, and Cartilage Composition in Knee OA  
**Period:** 2011-2014  
**Role:** Co-I

**Source:** UCSF CTSI Pilot in Integrative Medicine #20120123 (PI: Hecht)  
**Title:** Effects of Exercise on Aging among Older Persons with HIV – Pilot Study)  
**Period:** 2013-2014  
**Role:** Co-I

**Source:** UCSF Radiology & Biomedical Imaging Seed Grant # 11-07  
**Title:** Static and Dynamic Knee Alignment, Muscle Balance and Cartilage Composition in Young Adults  
**Period:** 2011-2013  
**Role:** PI

**Source:** International Society of Biomechanics Doctoral Dissertation Grant  
**Title:** Neuromuscular Control of Joint Stability in Knee Osteoarthritis  
**Period:** 2009 - 2010  
**Role:** PI

**Source:** American College of Rheumatology- Graduate Student Preceptorship  
**Title:** Knee Contact Force During Walking in People with Knee Osteoarthritis  
**Period:** 2007-2008  
**Role:** Preceptee

#### Trainee Funding (external)

**Source:** Rheumatology Research Foundation Investigator Award (PI: Costello)  
**Title:** Deep learning analysis of physical activity patterns in knee osteoarthritis  
**Period:** 08/2022-07/2025  
**Trainee:** Kerry Costello, PhD (Assistant Professor, University of Florida)

**Source:** Rheumatology Research Foundation Investigator Award (PI: Bacon)  
**Title:** Machine learning analysis of longitudinal gait data in osteoarthritis  
**Period:** 08/2020 - 07/2023  
**Trainee:** Kathryn Bacon, PhD (Assistant Professor, Boston University School of Medicine)

**Source:** NIH-NIAMS F32AR076907-01A1 (PI: Costello)  
**Title:** Machine learning for analysis of walking patterns and physical activity in knee osteoarthritis  
**Period:** 12/2021 - 05/2023  
**Trainee:** Kerry Costello, PhD (Postdoctoral Researcher)

**Source:** NIH-NIAMS T32 (PI: Felson)  
**Title:** Rheumatology Training Grant  
**Period:** 10/2018-09/2020  
**Trainee:** Kerry Costello, PhD (Postdoctoral Researcher)

**Source:** Rheumatology Research Foundation Medical and Graduate Student Preceptorship  
**Title:** Acceptability of a telehealth mindful exercise intervention for people with knee osteoarthritis  
**Period:** 01/2023-12/2023  
**Trainee:** Nirali Shah (Doctoral student)

**Source:** Rheumatology Research Foundation Medical and Graduate Student Preceptorship  
**Title:** Cortical function, pain sensitization, and walking patterns in people with knee osteoarthritis  
**Period:** 09/2022-08/2023  
**Trainee:** Soyoung Lee (Doctoral student)

**Source:** National Science Foundation Neurophotonics Traineeship: Understanding the Brain (PI: Boas)  
**Title:** Cortical function, pain sensitization, and walking patterns in people with knee osteoarthritis  
**Period:** 6/2020-5/2025  
**Trainee:** Soyoung Lee (Doctoral student)

### Trainee Funding (internal)

**Source:** Boston University Undergraduate Research Opportunities Program  
**Title:** Association of Movement-Evoked Pain with Muscle Co-contraction during Functional Activities in People with Knee Osteoarthritis  
**Period:** Spring 2024  
**Trainee:** Jason Dolinsky (Undergraduate student)

**Source:** Sargent Student Research Grant  
**Title:** Cortical function, gait automaticity, and central sensitization in people with knee osteoarthritis  
**Period:** 2023-2024  
**Trainee:** Soyoung Lee (Doctoral student)

**Source:** Sargent Student Travel Grant  
**Title:** OARSI Annual Congress 2023  
**Period:** 2023  
**Trainee:** Soyoung Lee (Doctoral student)

**Source:** Sargent Student Research Grant  
**Title:** Telehealth Exercise and Mindfulness for Pain in Osteoarthritis (TEMPO) – A feasibility study  
**Period:** 2022-2023  
**Trainee:** Nirali Shah (Doctoral student)

**Source:** Elizabeth Whitney Post Scholarship  
**Period:** 09/2022-05/2024  
**Trainee:** Soyoung Lee (Doctoral student)

**Source:** Elizabeth Whitney Post Scholarship  
**Period:** 09/2020-05/2022  
**Trainee:** Nirali Shah (Doctoral student)

**Source:** Ryan summer Scholarship  
**Period:** 06/2019-08/2019  
**Trainee:** Nirali Shah (Doctoral student)

**Source:** Boston University Undergraduate Research Opportunities Program  
**Title:** Music-based, rhythm modulating wearable sensor walking intervention for people with knee osteoarthritis  
**Period:** Summer 2022, Fall 2022, Spring 2023  
**Trainee:** Yiwen Yang (BS/DPT student)

**Source:** Boston University Undergraduate Research Opportunities Program  
**Title:** Testing music-based walking intervention in people with knee osteoarthritis  
**Period:** Fall 2022  
**Trainee:** Anushka Rathi (Undergraduate student)

- Source:** Boston University Undergraduate Research Opportunities Program  
**Title:** Effects and compliance of the lateral wedge insole in people with knee osteoarthritis  
**Period:** Spring 2019, Summer 2019, Fall 2019  
**Trainee:** Akshat Mehta (BS/DPT student)
- Source:** Boston University Undergraduate Research Opportunities Program  
**Title:** Quantification of hip cartilage T1rho and T2 relaxation times to identify early cartilage degeneration  
**Period:** Summer 2018, Fall 2018, Spring 2019, Fall 2019  
**Trainee:** Kaveh Torabian (Undergraduate student)
- Source:** Boston University Undergraduate Research Opportunities Program  
**Title:** Walking patterns and the development of early osteoarthritis in Anterior Cruciate Ligament (ACL) reconstruction  
**Period:** Spring 2018, Summer 2018  
**Trainee:** Daniel Chan (Undergraduate student)
- Source:** Boston University Undergraduate Research Opportunities Program  
**Title:** Physical activity promotion in people with knee osteoarthritis and comorbidities: A patient-centered mhealth intervention  
**Period:** Summer 2018  
**Trainee:** Bona Lee (Undergraduate student)
- Source:** Boston University Undergraduate Research Opportunities Program  
**Title:** Wearable sensors for assessment of varus thrust during walking in knee osteoarthritis  
**Period:** Summer 2018  
**Trainee:** Timothy Willard (Undergraduate student)
- Source:** Boston University Undergraduate Research Opportunities Program  
**Title:** Quantitative tool for assessment of varus thrust in knee osteoarthritis  
**Period:** Spring 2017, Summer 2017, Fall 2017, Spring 2018  
**Trainee:** Victoria Brus (Undergraduate student)
- Source:** Boston University Undergraduate Research Opportunities Program  
**Title:** Differences in knee loading during mindful walking compared to regular walking: A preliminary study  
**Period:** Summer 2017, Fall 2017  
**Trainee:** Jiten Patel (Undergraduate student)
- Source:** Boston University Undergraduate Research Opportunities Program  
**Title:** Effect of an unloading knee brace on biomechanics of stair climbing and getting up from a chair in people with knee osteoarthritis  
**Period:** Fall 2017  
**Trainee:** Yvonne Lin (Undergraduate student)
- Source:** Dean Moore Scholarship, Sargent College, Boston University  
**Period:** Fall 2016, Spring 2017  
**Trainee:** Timothy Willard (Undergraduate student)
- Source:** Dean Moore Scholarship, Sargent College, Boston University  
**Period:** Fall 2016, Spring 2017  
**Trainee:** Yvonne Lin (Undergraduate student)

## Peer-reviewed Journal Publications (\*denotes students or trainees)

NCBI MyBibliography: <https://www.ncbi.nlm.nih.gov/myncbi/deepak.kumar.1/bibliography/public/>

Google Scholar: <https://goo.gl/vaipFr>

1. \*Shah N, Morone N, \*Kim E, Ellis TD, Cohn E, LaValley MP, **Kumar D**. Telehealth mindful exercise for people with knee osteoarthritis: a decentralized feasibility randomized controlled trial. *Osteoarthritis and Cartilage Open* 2024
2. \*Lee S, Neogi T, Wang N, Frey-Law L, \*Torabian KT, Aoyagi K, Stefanik J, Carlesso LC, Hausdorff J, Gazit E, Segal N, Lewis CE, Nevitt M, **Kumar D**. Associations of Pain Sensitivity and Conditioned Pain Modulation with Physical Activity in Knee Osteoarthritis: The Multicenter Osteoarthritis Study. *Osteoarthritis and Cartilage* 2024
3. \*Bacon KL, Felson DT, Jafarzadeh SR, Kolachalama VB, Hausdorff JM, Gazit E, Stefanik JJ, Corrigan P, Segal NA, Lewis CE, Nevitt MC, **Kumar D**. Gait alterations associated with worsening knee pain and physical function: a machine-learning approach with wearable sensors in the Multicenter Osteoarthritis Study. *Arthritis Care Res (Hoboken)* 2024
4. Surendran T, Park LK, Lauber MV, \*Cha B, Jhun RS, Capellini TD, **Kumar D**, Felson DT, Kolachalama VB. Survival analysis on subchondral bone length for total knee replacement. *Skeletal Radiology* 2024
5. \*Shah N, Borrelli B, **Kumar D**. Perceptions about smartphone-based interventions to promote physical activity in inactive adults with knee pain. *Disability and Rehabilitation: Assistive Technology* 2023
6. \*Lee S, Neogi T, \*Costello KE, \*Senderling B, Stefanik JJ, Frey-Law L, **Kumar D**. Association of mechanical temporal summation of pain with muscle co-contraction during walking in people with knee osteoarthritis. *Clinical Biomechanics* 2023
7. Neelapala YVR, Neogi T, **Kumar D**, Jarraya M, Macedo L, Kobsar D, Hanna S, Frey-Law LA, Lewis CE, Nevitt M, Appleton T, Birmingham T, Carless L. Exploring pain phenotypes in people with early knee osteoarthritis and their associations with pain worsening. *Osteoarthritis and Cartilage* 2023
8. **Kumar D**, Neogi T, Peloquin C, Marinko L, Camarinos J, Aoyagi K, Felson DT, Dubreuil M. Timing of physical therapy initiation and risk of future opioids use in individuals with knee osteoarthritis: a real-world cohort study. *Br J Sports Med* 2023
9. \*Costello KE, Felson DT, Jafarzadeh SR, Guermazi A, Roemer F, Segal N, Lewis CE, Nevitt M, Lewis CL, Kolachalama VB, **Kumar D**. Gait, physical activity, and tibiofemoral cartilage damage: A longitudinal machine learning analysis in the Multicenter Osteoarthritis Study. *Br J Sports Med* 2023
10. \*Rose M, Neogi T, \*Friscia B, \*Torabian K, LaValley MP, Gheller M, Adamowicz L, Georgiev P, Viktrup L, Demanuele C, Wacnik P, **Kumar D**. Reliability of wearable sensors for assessing gait and chair stand function at home in people with knee osteoarthritis. *Arthritis Care Res (Hoboken)* 2023
11. \*Bacon, K.L., Felson, D.T., Jafarzadeh, S.J., Kolachalama, V.B., Hausdorff, J.M., Gazit, E., Segal, N.A., Lewis, C.E., Nevitt, M.C., **Kumar, D**. Relation of gait measures with mild unilateral knee pain during walking using machine learning. *Scientific Reports*, 2022. 12(1):22200
12. \*Rose, M.J., LaValley, M.P., Jafarzadeh, S.R., \*Costello, K.E., \*Shah, N., \*Lee, S., Borrelli, B., Messier, S.P., Neogi, T., **Kumar, D**. Impact of COVID-19 Pandemic on Physical Activity, Pain, Mood, and Sleep in Adults with Knee Osteoarthritis. *Journal for the measurement of physical behaviour*. 2022 Sep; 5(4):294-298
13. \*Shah, N., \*Costello, K., \*Mehta, A. and **Kumar, D.**, Applications of Digital Health Technologies in Knee Osteoarthritis: Narrative Review. *JMIR Rehabilitation and Assistive Technologies*, 2022. 9(2): p. e33489.
14. \*Rose, M.J., \*Costello, K.E., \*Eigenbrot, S., \*Torabian, K. and **Kumar, D.**, Inertial Measurement Units and Application for Remote Health Care in Hip and Knee Osteoarthritis: Narrative Review. *JMIR Rehabilitation and Assistive Technologies*, 2022. 9(2): p. e33521.

15. Aoyagi, K., Liew, J.W., Farrar, J.T., Wang, N., Carlesso, L., **Kumar, D.**, Frey Law, L., Lewis, C.E., Nevitt M, Neogi T. Does weight-bearing versus non-weight-bearing pain reflect different pain mechanisms in knee osteoarthritis?: the Multicenter Osteoarthritis Study (MOST). *Osteoarthritis and Cartilage*, 2022. 30(4): p. 545-550.
16. \*Shah, N., Kramer, J., Borrelli, B. and **Kumar, D.**, Interrelations between factors related to physical activity in inactive adults with knee pain. *Disabil Rehabil*, 2021: p. 1-7.
17. **Kumar, D.**, Link, T.M., Jafarzadeh, S.R., LaValley, M.P., Majumdar, S. and Souza, R.B., Association of Quadriceps Adiposity With an Increase in Knee Cartilage, Meniscus, or Bone Marrow Lesions Over Three Years. *Arthritis Care Res (Hoboken)*, 2021. 73(8): p. 1134-1139.
18. Endrighi, R., Zhao, Y., Hughes, R.B., **Kumar, D.** and Borrelli, B., Associations Between Smoking Status and Physical and Mental Health-Related Quality of Life Among Individuals With Mobility Impairments. *Annals of Behavioral Medicine*, 2021.
19. \*Costello, K.E., Felson, D.T., Neogi, T., Segal, N.A., Lewis, C.E., Gross, K.D., Nevitt, M.C., Lewis, C.L., **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 and Cartilage*, 2021. 29(8): p. 1138-1146.
20. \*Brown, C., Marinko, L., LaValley, M.P. and **Kumar, D.**, Quadriceps Strength After Anterior Cruciate Ligament Reconstruction Compared With Uninjured Matched Controls: A Systematic Review and Meta-analysis. *Orthopaedic Journal of Sports Medicine*, 2021. 9(4): p. 2325967121991534.
21. \*Aoyagi, K., Neogi, T., Peloquin, C., Dubreuil, M., Marinko, L., Camarinos, J., Felson, D.T., and **Kumar, D.**, Association of Physical Therapy Interventions With Long-term Opioid Use After Total Knee Replacement. *JAMA Network Open*, 2021. 4(10): p. e2131271.
22. \*Espinosa, S.E., \*Costello, K.E., Souza, R.B. and **Kumar, D.**, Lower knee extensor and flexor strength is associated with varus thrust in people with knee osteoarthritis. *Journal of Biomechanics*, 2020. 107: p. 109865.
23. \*Costello, K.E., \*Eigenbrot, S., \*Geronimo, A., Guermazi, A., Felson, D.T., Richards, J., and **Kumar, D.**, Quantifying varus thrust in knee osteoarthritis using wearable inertial sensors: A proof of concept. *Clinical Biomechanics (Bristol, Avon)*, 2020. 80: p. 105232.
24. Porciuncula, F., Roto, A.V., **Kumar, D.**, Davis, I., Roy, S., Walsh, C.J., and Awad, L.N., Wearable Movement Sensors for Rehabilitation: A Focused Review of Technological and Clinical Advances. *Physical Medicine & Rehabilitation*, 2018. 10(9 Suppl 2): p. S220-s232. DOI: 10.1016/j.pmrj.2018.06.013.
25. **Kumar, D.**, Wyatt, C., Lee, S., Okazaki, N., Chiba, K., Link, T.M., Souza, R.B., and Majumdar, S., Sagittal plane walking patterns are related to MRI changes over 18-months in people with and without mild-moderate hip osteoarthritis. *Journal of Orthopaedic Research*, 2018. 36(5): p. 1472-1477.
26. **Kumar, D.**, Su, F., Wu, D., Pedroia, V., Heitkamp, L., Ma, C.B., Souza, R.B., and Li, X., Frontal Plane Knee Mechanics and Early Cartilage Degeneration in People With Anterior Cruciate Ligament Reconstruction: A Longitudinal Study. *American Journal of Sports Medicine*, 2018. 46(2): p. 378-387.
27. Gallo, M.C., Wyatt, C., Pedroia, V., **Kumar, D.**, Lee, S., Nardo, L., Link, T.M., Souza, R.B., et al., T1 $\rho$  and T2 relaxation times are associated with progression of hip osteoarthritis. *Osteoarthritis and Cartilage*, 2016. 24(8): p. 1399-407.
28. Calixto, N.E., **Kumar, D.**, Subburaj, K., Singh, J., Schooler, J., Nardo, L., Li, X., Souza, R.B., et al., Zonal differences in meniscus MR relaxation times in response to in vivo static loading in knee osteoarthritis. *Journal of Orthopaedic Research*, 2016. 34(2): p. 249-61.
29. Wyatt, C., **Kumar, D.**, Subburaj, K., Lee, S., Nardo, L., Narayanan, D., Lansdown, D., Vail, T., et al., Cartilage T1 $\rho$  and T2 Relaxation Times in Patients With Mild-to-Moderate Radiographic Hip Osteoarthritis. *Arthritis and Rheumatology*, 2015. 67(6): p. 1548-56.
30. Teng, H.L., MacLeod, T.D., **Kumar, D.**, Link, T.M., Majumdar, S. and Souza, R.B., Individuals with isolated patellofemoral joint osteoarthritis exhibit higher mechanical loading at the knee during the second half of the stance phase. *Clinical Biomechanics (Bristol, Avon)*, 2015. 30(4): p. 383-90.

31. Samaan, M.A., Teng, H.L., **Kumar, D.**, Lee, S., Link, T.M., Majumdar, S., and Souza, R.B., Acetabular cartilage defects cause altered hip and knee joint coordination variability during gait. *Clinical Biomechanics (Bristol, Avon)*, 2015. 30(10): p. 1202-9.
32. Pun, S., **Kumar, D.** and Lane, N.E., Femoroacetabular impingement. *Arthritis and Rheumatology*, 2015. 67(1): p. 17-27.
33. McDermott, K., **Kumar, D.**, Goldman, V., Feng, H., Mehling, W., Moskowitz, J.T., Souza, R.B., and Hecht, F.M., Training in ChiRunning to reduce blood pressure: a randomized controlled pilot study. *BMC Complementary & Alternative Medicine*, 2015. 15: p. 368.
34. MacLeod, T.D., Subburaj, K., Wu, S., **Kumar, D.**, Wyatt, C. and Souza, R.B., Magnetic resonance analysis of loaded meniscus deformation: a novel technique comparing participants with and without radiographic knee osteoarthritis. *Skeletal Radiology*, 2015. 44(1): p. 125-35.
35. Li, X., Pedoia, V., **Kumar, D.**, Rivoire, J., Wyatt, C., Lansdown, D., Amano, K., Okazaki, N., et al., Cartilage T1 $\rho$  and T2 relaxation times: longitudinal reproducibility and variations using different coils, MR systems and sites. *Osteoarthritis and Cartilage*, 2015. 23(12): p. 2214-2223.
36. Lee, S., Nardo, L., **Kumar, D.**, Wyatt, C.R., Souza, R.B., Lynch, J., McCulloch, C.E., Majumdar, S., et al., Scoring hip osteoarthritis with MRI (SHOMRI): A whole joint osteoarthritis evaluation system. *Journal of Magnetic Resonance Imaging*, 2015. 41(6): p. 1549-57.
37. **Kumar, D.**, Wyatt, C., Chiba, K., Lee, S., Nardo, L., Link, T.M., Majumdar, S., and Souza, R.B., Anatomic correlates of reduced hip extension during walking in individuals with mild-moderate radiographic hip osteoarthritis. *Journal of Orthopaedic Research*, 2015. 33(4): p. 527-34.
38. **Kumar, D.**, Souza, R.B., Subburaj, K., MacLeod, T.D., Singh, J., Calixto, N.E., Nardo, L., Link, T.M., et al., Are There Sex Differences in Knee Cartilage Composition and Walking Mechanics in Healthy and Osteoarthritis Populations? *Clinical Orthopaedic and Related Research*, 2015. 473(8): p. 2548-58.
39. **Kumar, D.**, McDermott, K., Feng, H., Goldman, V., Luke, A., Souza, R.B., and Hecht, F.M., Effects of Form-Focused Training on Running Biomechanics: A Pilot Randomized Trial in Untrained Individuals. *Physical Medicine & Rehabilitation*, 2015. 7(8): p. 814-822.
40. Souza, R.B., **Kumar, D.**, Calixto, N., Singh, J., Schooler, J., Subburaj, K., Li, X., Link, T.M., et al., Response of knee cartilage T1 $\rho$  and T2 relaxation times to in vivo mechanical loading in individuals with and without knee osteoarthritis. *Osteoarthritis and Cartilage*, 2014. 22(10): p. 1367-76.
41. Schooler, J., **Kumar, D.**, Nardo, L., McCulloch, C., Li, X., Link, T.M., and Majumdar, S., Longitudinal evaluation of T1 $\rho$  and T2 spatial distribution in osteoarthritic and healthy medial knee cartilage. *Osteoarthritis and Cartilage*, 2014. 22(1): p. 51-62.
42. **Kumar, D.**, Swanik, C.B., Reisman, D.S. and Rudolph, K.S., Individuals with medial knee osteoarthritis show neuromuscular adaptation when perturbed during walking despite functional and structural impairments. *Journal of Applied Physiology (1985)*, 2014. 116(1): p. 13-23.
43. **Kumar, D.**, Souza, R.B., Singh, J., Calixto, N.E., Nardo, L., Link, T.M., Li, X., and Majumdar, S., Physical activity and spatial differences in medial knee T1 $\rho$  and t2 relaxation times in knee osteoarthritis. *Journal of Orthopaedic and Sports Physical Therapy*, 2014. 44(12): p. 964-72.
44. **Kumar, D.**, Kothari, A., Souza, R.B., Wu, S., Benjamin Ma, C. and Li, X., Frontal plane knee mechanics and medial cartilage MR relaxation times in individuals with ACL reconstruction: A pilot study. *Knee*, 2014. 21(5): p. 881-5.
45. **Kumar, D.**, Karampinos, D.C., MacLeod, T.D., Lin, W., Nardo, L., Li, X., Link, T.M., Majumdar, S., et al., Quadriceps intramuscular fat fraction rather than muscle size is associated with knee osteoarthritis. *Osteoarthritis and Cartilage*, 2014. 22(2): p. 226-34.
46. **Kumar, D.**, Dillon, A., Nardo, L., Link, T.M., Majumdar, S. and Souza, R.B., Differences in the association of hip cartilage lesions and cam-type femoroacetabular impingement with movement patterns: a preliminary study. *Physical Medicine & Rehabilitation*, 2014. 6(8): p. 681-9.
47. Valentinič, A., Karampinos, D.C., Alizai, H., Subburaj, K., **Kumar, D.**, Link, T.M., and Majumdar, S., Automated unsupervised multi-parametric classification of adipose tissue depots in skeletal muscle. *Journal of Magnetic Resonance Imaging*, 2013. 37(4): p. 917-27.
48. **Kumar, D.**, Wyatt, C.R., Lee, S., Nardo, L., Link, T.M., Majumdar, S., and Souza, R.B., Association of cartilage defects, and other MRI findings with pain and function in individuals with mild-moderate radiographic hip osteoarthritis and controls. *Osteoarthritis and Cartilage*, 2013. 21(11): p. 1685-92.

49. **Kumar, D.**, Subburaj, K., Lin, W., Karampinos, D.C., McCulloch, C.E., Li, X., Link, T.M., Souza, R.B., et al., Quadriceps and hamstrings morphology is related to walking mechanics and knee cartilage MRI relaxation times in young adults. *Journal of Orthopaedic and Sports Physical Therapy*, 2013. 43(12): p. 881-90.
50. **Kumar, D.**, Schooler, J., Zuo, J., McCulloch, C.E., Nardo, L., Link, T.M., Li, X., and Majumdar, S., Trabecular bone structure and spatial differences in articular cartilage MR relaxation times in individuals with posterior horn medial meniscal tears. *Osteoarthritis and Cartilage*, 2013. 21(1): p. 86-93.
51. **Kumar, D.**, Manal, K.T. and Rudolph, K.S., Knee joint loading during gait in healthy controls and individuals with knee osteoarthritis. *Osteoarthritis and Cartilage*, 2013. 21(2): p. 298-305.
52. Subburaj, K., **Kumar, D.**, Souza, R.B., Alizai, H., Li, X., Link, T.M., and Majumdar, S., The acute effect of running on knee articular cartilage and meniscus magnetic resonance relaxation times in young healthy adults. *American Journal of Sports Medicine*, 2012. 40(9): p. 2134-41.
53. **Kumar, D.**, Rudolph, K.S. and Manal, K.T., EMG-driven modeling approach to muscle force and joint load estimations: case study in knee osteoarthritis. *Journal of Orthopaedic Research*, 2012. 30(3): p. 377-83. DOI: 10.1002/jor.21544.
54. Shin, C.S., Souza, R.B., **Kumar, D.**, Link, T.M., Wyman, B.T. and Majumdar, S., In vivo tibiofemoral cartilage-to-cartilage contact area of females with medial osteoarthritis under acute loading using MRI. *Journal of Magnetic Resonance Imaging*, 2011. 34(6): p. 1405-13.
55. Maheshwari, A.V., Malhotra, R., **Kumar, D.** and Pitcher, J.D., Jr., Rupture of the ilio-psoas tendon after a total hip arthroplasty: an unusual cause of radio-lucency of the lesser trochanter simulating a malignancy. *Journal of Orthopaedic Surgery Research*, 2010. 5: p. 6.
56. Maheshwari, A.V., Kounine, M.M., Soaita, M., **Kumar, D.** and Pitcher, J.D., Jr., Osteoporotic insufficiency fractures of the pelvis simulating a malignancy in an elderly man. *American Journal of Orthopaedics (Belle Mead NJ)*, 2009. 38(2): p. E45-8.
57. \*Aggarwal SR, **Kumar D**: Lower extremity muscle strength and balance performance in Indian Community dwelling elderly men aged 50 years and above. *Indian Journal of Physiotherapy and Occupational Therapy*, 2006 1(1).13-23.

### Full-length Conference Papers

1. \*Han X, \*Senderling B, To S, **Kumar D**, Whiting E, Saito J. GroundLink: A dataset unifying human body movement and ground reaction dynamics. *SIGGRAPH ASIA 2023*

### Conference Presentations (\*denotes students or trainees)

1. \*Kim E, Neogi T, \*Lee S, **Kumar D**. Relation of pain sensitization with knee loading during walking in people with knee osteoarthritis. *Osteoarthritis Cart* 2024 Apr; (Suppl). Osteoarthritis Research Society International Annual Congress, Vienna, Austria [platform presentation]
2. \*Bacon K, Felson DT, Jafarzadeh SR, Hausdorff J, Gazit E, Segal NE, Lewis CE, Nevitt MC, **Kumar D**. Association of wearable-sensor derived gait measures with cartilage worsening over 2 years in the Multicenter Osteoarthritis Study. *Osteoarthritis Cart* 2024 Apr; (Suppl). Osteoarthritis Research Society International Annual Congress, Vienna, Austria [platform presentation][selected as highest rated abstracts by early stage investigators]
3. \*Yang Y, \*Okamura M, \*Kim E, **Kumar D**. A digital, closed-loop rhythmic auditory stimulation intervention using music during walking: a single-session feasibility study in knee osteoarthritis. *Osteoarthritis Cart* 2024 Apr; (Suppl). Osteoarthritis Research Society International Annual Congress, Vienna, Austria [poster]
4. **Kumar D**, \*Kim E, Gheller M, Tuttle P, Demanuele C, Wacnik P, Neogi T. Association of activity-related pain and impaired exercise-induced hypoalgesia with physical activity in people with knee osteoarthritis. *Osteoarthritis Cart* 2024 Apr; (Suppl). Osteoarthritis Research Society International Annual Congress, Vienna, Austria [poster]
5. **Kumar D**, Adamowicz L, \*Senderling B, Gheller M, Tuttle P, Demanuele C, Wacnik P, Neogi T. Gait speed in everyday life: a potential therapeutic target and digital endpoint for knee osteoarthritis. *Osteoarthritis Cart* 2024 Apr; (Suppl). Osteoarthritis Research Society International Annual Congress, Vienna, Austria [poster]

6. **Kumar D**, Adamowicz L, \*Senderling B, Marinko L, Gheller M, LaValley M, Bacon K, Tuttle P, Demanuele C, Wacnik P, Neogi T. Changes in clinic-based and real-world measures of gait after exercise in people with knee osteoarthritis. *Osteoarthritis Cart* 2024 Apr; (Suppl). Osteoarthritis Research Society International Annual Congress, Vienna, Austria [poster]
7. \*Yang Y, Neogi T, \*Senderling B, Gheller M, Marinko L, LaValley M, Ni P, Tuttle P, Demanuele C, Wacnik P, **Kumar D**. Effect of exercise on sleep in people with knee osteoarthritis. *Osteoarthritis Cart* 2024 Apr; (Suppl). Osteoarthritis Research Society International Annual Congress, Vienna, Austria [poster]
8. \*Kim E, Neogi T, \*Senderling BM, Gheller M, Marinko L, LaValley MP, Adamowicz L, Georgiev P, Demanuele C, Wacnik PW, **Kumar D**. Effects of exercise on movement-evoked pain in people with knee osteoarthritis. *American Physical Therapy Association Combined Sections Meeting 2024*, Boston, MA [platform]
9. \*Yang Y, Neogi T, \*Senderling B, Gheller M, Marinko L, LaValley MP, Ni P, Georgiev P, Demanuele C, Wacnik PW, **Kumar D**. Effect of exercise on sleep in people with knee osteoarthritis. *American Physical Therapy Association Combined Sections Meeting 2024*, Boston, MA [platform]
10. \*Senderling B, Neogi T, \*Kim E, Gheller M, Marinko M, Georgiev P, Demanuele C, Wacnik PW, **Kumar D**. Changes in Dynamic Stability during Stair Climbing with Exercise in People with Knee Osteoarthritis. *American Physical Therapy Association Combined Sections Meeting 2024*, Boston, MA [platform]
11. **Kumar D**, \*Senderling B, Gheller M, Marinko L, \*Kim E, LaValley MP, Ni P, Georgiev P, Demanuele C, Wacnik PW, Neogi T. Changes in nociceptive signaling and exercise induced hypoalgesia with exercise in people with knee osteoarthritis. *American Physical Therapy Association Combined Sections Meeting 2024*, Boston, MA [poster]
12. **Kumar D**, Adamowicz L, \*Senderling B, Gheller M, LaValley MP, Bacon K, Georgiev P, Demanuele C, Wacnik PW, Neogi T. A Wearable-Sensor Digital Biomarker for Gait and Chair Stand Patterns in People with Knee Osteoarthritis. *American Physical Therapy Association Combined Sections Meeting 2024*, Boston, MA [poster]
13. **Kumar D**, Adamowicz L, \*Senderling B, Marinko L, Gheller M, LaValley MP, Bacon K, Georgiev P, Demanuele C, Wacnik PW, Neogi T. Changes in Clinic-Based and Real-World Measures of Gait after Exercise in People with Knee Osteoarthritis. *American Physical Therapy Association Combined Sections Meeting 2024*, Boston, MA [poster]
14. \*Lee S, Yücel M, Ferre C, Neogi T, \*Cha B, \*Kim E, **Kumar D**. Frontal lobe activation during daily movements and its association with clinical symptoms in knee osteoarthritis. *American Physical Therapy Association Combined Sections Meeting 2024*, Boston, MA [poster]
15. \*Lee S, Yücel M, Ferre C, \*Cha B, \*Kim E, **Kumar D**. Frontal lobe activation and gait alterations during single- and dual-task walking in knee osteoarthritis. *American Physical Therapy Association Combined Sections Meeting 2024*, Boston, MA [poster]
16. \*Shah N, Morone N, \*Kim E, Ellis T, Cohn E, **Kumar D**. Optimization of Telehealth Mindful Exercise in Knee Osteoarthritis: A Randomized Controlled Trial. *American Physical Therapy Association Combined Sections Meeting 2024*, Boston, MA [poster]
17. Holmes MB, Neogi T, Marinko L, \*Senderling B, Gheller M, Georgiev P, **Kumar D**. Association of Therapeutic Alliance with Changes in Knee Osteoarthritis Outcomes after Physical Therapist Delivered Intervention. *American Physical Therapy Association Combined Sections Meeting 2024*, Boston, MA [poster]
18. \*Lee S, Yücel M, Ferre C, \*Cha B, \*Kim E, **Kumar D**. Frontal lobe activation and gait alterations during single- and dual-task walking in knee osteoarthritis. *American College of Rheumatology Convergence 2023*, San Diego, CA [poster]
19. \*Kim E, Neogi T, \*Senderling BM, Gheller M, Marinko L, LaValley MP, Adamowicz L, Georgiev P, Demanuele C, Wacnik PW, **Kumar D**. Effects of exercise on movement-evoked pain in people with knee osteoarthritis. *American College of Rheumatology Convergence 2023*, San Diego, CA [poster]

20. **Kumar D**, Adamowicz L, \*Senderling B, Gheller M, LaValley MP, Bacon K, Georgiev P, Demanuele C, Wacnik PW, Neogi T. A wearable sensor for assessment of gait and chair stand patterns in people with knee osteoarthritis: Validation and responsiveness to treatment of a potential digital biomarker. *American College of Rheumatology Convergence 2023*, San Diego, CA [poster]
21. \*Costello K, Felson D, Jafarzaeh SR, Segal N, Lewis C, Nevitt M, Kolachalama V, **Kumar D**. A machine learning approach to examine the role of gait and physical activity parameters on risk of knee replacement: the Multicenter Osteoarthritis Study. *American Society of Biomechanics 2023*, Knoxville, TN [poster]
22. \*Costello KE, Felson DT, Jafarzadeh SR, Segal N, Lewis CE, Nevitt M, Kolachalama VB, **Kumar D**. Gait and physical activity predictors of knee replacement in the Multicenter Osteoarthritis Study: A machine learning analysis. *Osteoarthritis Cart* 2023 Mar; (Suppl). Osteoarthritis Research Society International Annual Congress, Denver, CO, USA [poster]
23. Holmes MB, Neogi T, Marinko L, Gheller M, Jafarzadeh SR, Adamowicz L, Georgiev P, Viktrup L, Demanuele C, Wacnik P, **Kumar D**. Relation of therapeutic alliance and adherence with changes in pain and function after a physical therapist-delivered exercise intervention in people with knee osteoarthritis. *Osteoarthritis Cart* 2023 Mar; (Suppl). Osteoarthritis Research Society International Annual Congress, Denver, CO, USA [poster]
24. \*Lee S, Neogi T, Senderling B, Gheller M, Adamowicz L, Georgiev P, Viktrup P, Demanuele C, Wacnik P, **Kumar D**. No pain, no gain: Association of pain increase during exercise with exercise-induced hypoalgesia in people with knee osteoarthritis. *Osteoarthritis Cart* 2023 Mar; (Suppl). Osteoarthritis Research Society International Annual Congress, Denver, CO, USA [poster]
25. \*Cha B, Kolachalama VB, **Kumar D**. Estimation of knee kinematics and kinetics during walking using deep learning and inertial sensors in people with knee osteoarthritis. *Osteoarthritis Cart* 2023 Mar; (Suppl). Osteoarthritis Research Society International Annual Congress, Denver, CO, USA [poster]
26. \*Bacon KB, Felson DT, Jafarzadeh SR, Kolachalama VB, Hausdorff JM, Gazit E, Segal NA, Lewis CE, Nevitt MC, **Kumar D**. Gait Alterations Associated with Worsening Physical Function over 2 Years: A Machine-learning Approach in the Multicenter Osteoarthritis (MOST) Study. *Osteoarthritis Cart* 2023 Mar; (Suppl). Osteoarthritis Research Society International Annual Congress, Denver, CO, USA [poster]
27. \*Kim J, Felson DT, LaValley MP, Segal N, Lewis CE, Nevitt M, **Kumar D**. Association of gait asymmetry with risk of a contralateral total knee arthroplasty in people with unilateral total knee arthroplasty: The Multicenter Osteoarthritis Study. *Osteoarthritis Cart* 2023 Mar; (Suppl). Osteoarthritis Research Society International Annual Congress, Denver, CO, USA [poster]
28. **Kumar D**, Wang N, \*Costello KE, \*Torabian K, \*Lee S, Frey-Law L, Carlesso LC, Hausdorff JM, Gazit E, Lewis CE, Stefanik JJ, Segal NE, Lewis CE, Nevitt MC, Neogi T. Gait and changes in nociceptive function over 2-years in people with knee osteoarthritis. The Multicenter Osteoarthritis Study. *Osteoarthritis Cart* 2023 Mar; (Suppl). Osteoarthritis Research Society International Annual Congress, Denver, CO, USA [poster]
29. Corrigan P, Lewis CL, \*Costello K, Guermazi A, Roemer F, **Kumar D**, Felson DT, Bacon K, Neogi T, LaValley MP, Nevitt M, Lewis CE, Torner J, Stefanik J. Asymmetrical ground reaction forces while walking are not associated with unilateral to bilateral knee osteoarthritis progression: the MOST study. *Osteoarthritis Cart* 2023 Mar; (Suppl). Osteoarthritis Research Society International Annual Congress, Denver, CO, USA [poster]
30. **Kumar D**, \*Costello KE, \*Shah N, Neogi T, \*Lee S, \*Rose MJ, Borrelli B, Messier S, LaValley MP. Improving Quantity and Quality of Walking in Knee Osteoarthritis: A feasibility randomized controlled trial. *J Orthop Sports Physical Therapy* 2023 Jan American Physical Therapy Association Combined Sections Meeting, San Diego, CA [platform]
31. **Kumar D**, Wang N, Frey-Law L, \*Torabian K, Aoyagi K, Stefanik JJ, Carlesso LC, Hausdorff JM, Gazit E, Segal NA, Lewis CE, Nevitt MC, Neogi T. Associations of Nociceptive Dysfunction with Physical Activity in Knee Osteoarthritis: The Multicenter Osteoarthritis Study. *J Orthop Sports*

*Physical Therapy 2023* Jan American Physical Therapy Association Combined Sections Meeting, San Diego, CA [platform]

32. \*Bacon KB, Felson DT, Jafarzadeh SR, Kolachalama VB, Hausdorff JM, Gazit E, Segal NA, Lewis CE, Nevitt MC, **Kumar D**. Gait Alterations Associated with Worsening Physical Function over 2 Years: A Machine-learning Approach in the Multicenter Osteoarthritis (MOST) Study. *Arthritis Rheumatol* 2022 Nov. American College of Rheumatology Annual Meeting [ignite platform]
33. \*Costello KE, Felson DT, Jafarzadeh SR, Segal NE, Lewis CE, Nevitt M, Lewis CL, Kolachalama VB, **Kumar D**. Gait and Physical Activity Predictors of Knee Replacement: A Machine Learning Analysis in the Multicenter Osteoarthritis Study. *Arthritis Rheumatol* 2022 Nov. American College of Rheumatology Annual Meeting [poster]
34. **Kumar D**, Wang N, Frey-Law L, \*Torabian K, Aoyagi K, Stefanik JJ, Carlesso LC, Hausdorff JM, Gazit E, Segal NA, Lewis CE, Nevitt MC, Neogi T. Associations of Nociceptive Dysfunction with Physical Activity in Knee Osteoarthritis: The Multicenter Osteoarthritis Study. *Arthritis Rheumatol* 2022 Nov. American College of Rheumatology Annual Meeting [poster]
35. Corrigan P, Lewis C, Costello KE, Guermazi A, Roemer F, **Kumar D**, Felson D, Bacon K, Neogi T, LaValley MP, Nevitt M, Lewis CE, Torner J, Stefanik j. 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. *Arthritis Rheumatol* 2022 Nov. American College of Rheumatology Annual Meeting [platform]
36. \*Torabian K, Neogi T, Wang N, Aoyagi K, \*Lee S, Stefanik J, Frey-Law- L, Carlesso LC, Hausdorff JM, Gazit E, Segal NE, Lewis CE, Nevitt MC, **Kumar D**. Associations of Central Pain Sensitization with Wearable Sensor-derived Gait Complexity and Dynamic Stability in Knee Osteoarthritis: The Multicenter Osteoarthritis Study. International Society for the Study of Pain Annual Congress 2022, Toronto Canada [poster]
37. \*Rose MJ, Neogi T, \*Frischia B, \*Torabian K, LaValley MP, Gheller M, Adamowicz L, Georgiev P, Viktrup L, Demanuele C, Wacnik P, **Kumar D**. At-home assessment of walking and chair stand movements using wearable sensors in knee osteoarthritis: a reliability study. *North American Congress on Biomechanics*, Aug 21-25, Ottawa, Canada [platform]
38. **Kumar D**, \*Costello KE, \*Shah N, \*Lee S, \*Rose MJ, Borrelli B, Messier SP, LaValley MP. Mindful walking in knee osteoarthritis: A feasibility randomized controlled trial. *Osteoarthritis Cart* 2022 Apr; (Suppl). Osteoarthritis Research Society International Annual Congress, Berlin, Germany [platform]
39. \*Rose MJ, Neogi T, \*Frischia B, \*Torabian K, LaValley MP, Gheller M, Adamowicz L, Georgiev P, Viktrup L, Demanuele C, Wacnik P, **Kumar D**. Reliability of wearable sensors for assessing gait and chair stand function at home in people with knee osteoarthritis. *Osteoarthritis Cart* 2022 Apr; (Suppl). Osteoarthritis Research Society International Annual Meeting, Berlin, Germany [platform]
40. \*Lee S, Neogi T, \*Costello KE, \*Shah N, \*Rose MJ, \*Frischia B, \*Torabian KA, Aoyagi K, Gheller M, **Kumar D**. Association of condition pain modulation with exercise-induced hypoalgesia in knee osteoarthritis. *Osteoarthritis Cart* 2022 Apr; (Suppl). Osteoarthritis Research Society International Annual Meeting, Berlin, Germany [poster]
41. \*Bacon KB, Felson DT, Jafarzadeh SR, Kolachalama VB, Hausdorff JM, Gazit E, Segal NA, Lewis CE, Nevitt MC, **Kumar D**. Gait Alterations Associated with Worsening Knee Pain over 2 Years: A Machine-learning Approach in the Multicenter Osteoarthritis (MOST) Study. *Osteoarthritis Cart* 2022 Apr; (Suppl). Osteoarthritis Research Society International Annual Meeting, Berlin, Germany [platform]
42. \*Mehta A, \*Costello KC, \*Rose M, \*Lee S, Frey-Law L, Aoyagi K, Neogi T, **Kumar D**. Association between impaired exercise-induced hypoalgesia and physical activity in people with knee osteoarthritis. *J Orthop Sports Physical Therapy* 2022 Jan American Physical Therapy Association Combined Sections Meeting, San Antonio, TX [poster]
43. \*Bacon KB, Felson DT, Jafarzadeh SR, Kolachalama VB, Hausdorff JM, Gazit E, Segal NA, Lewis CE, Nevitt MC, **Kumar D**. Gait alterations associated with worsening knee pain over 2-years: A machine learning approach in the Multicenter osteoarthritis study. *Arthritis Rheumatol* 2021 Nov. American College of Rheumatology Annual Meeting [virtual] [platform]

44. \*Costello KE, Felson DT, Jafarzadeh SR, Segal NE, Lewis CE, Nevitt M, Lewis CL, Kolochalama VB, **Kumar D**. Using machine learning to predict medial knee cartilage worsening over 2 years using gait and physical activity. *Arthritis Rheumatol* 2021 Nov. American College of Rheumatology Annual Meeting [virtual] [poster]
45. \*Lee S, Neogi T, **Kumar D**. Association of pain intensity and patterns with response to exercise in knee osteoarthritis. *Osteoarthritis Cart* 2021 Apr; (Suppl). Osteoarthritis Research Society International Annual Meeting, Virtual, [platform]
46. \*Rose M, LaValley MP, Jafarzadeh R, \*Costello KE, \*Shah N, \*Lee S, Rabasa G, Borrelli B, Messier SP, Neogi T, **Kumar D**. Impact of COVID-19 pandemic on physical activity, pain, mood, and sleep in adults with knee osteoarthritis. *Osteoarthritis Cart* 2021 Apr; (Suppl). Osteoarthritis Research Society International Annual Meeting, Virtual, [poster]
47. \*Lee S, Neogi T, \*Eigenbrot S, Stefanik J, \*Costello KE, **Kumar D**. Mechanical temporal summation is associated with greater muscle co-contraction during walking in knee osteoarthritis. *Osteoarthritis Cart* 2021 Apr; (Suppl). Osteoarthritis Research Society International Annual Meeting, Virtual, [poster]
48. \*Bacon KL, Jafarzadeh SR, Kolochalama VB, Hausdorff JM, Gazit E, **Kumar D**, Segal NA, Lewis CE, Nevitt MN, Felson DT. Gait modifications occur even with mild to moderate unilateral knee pain: a machine learning approach using wearable sensors in the multicenter osteoarthritis study. *Osteoarthritis Cart* 2021 Apr; (Suppl). Osteoarthritis Research Society International Annual Meeting, Virtual, [poster]
49. \*Costello KE, Felson DT, Kolochalama V, Lewis CL, Liu F, Gross D, Segal N, Lewis CE, Nevitt M, **Kumar D**. Flatter ground reaction force patterns are associated with incident knee pain over two years: the multicenter osteoarthritis study. *Osteoarthritis Cartilage* 2020 Apr; (Suppl). Osteoarthritis Research Society International Annual Meeting, Vienna, Austria [poster] [meeting canceled due to COVID-19]
50. \*Shah N, Kramer J, Borrelli B, **Kumar D**. Sex differences in barriers and facilitators related to physical activity in adults with knee pain. *Osteoarthritis Cartilage* 2020 Apr; (Suppl). Osteoarthritis Research Society International Annual Meeting, Vienna, Austria [poster] [meeting canceled due to COVID-19]
51. **Kumar D**, \*Costello CE, 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 Cartilage* 2020 Apr; (Suppl). Osteoarthritis Research Society International Annual Meeting, Vienna, Austria [poster] [meeting canceled due to COVID-19]
52. **Kumar D**, Peloquin C, Aoyagi K, Marinko L, Camarinos J, Dubreuil M, Neogi T. Physical therapy and opioid utilization following total knee replacement. *Osteoarthritis Cartilage* 2020 Apr; (Suppl). Osteoarthritis Research Society International Annual Meeting, Vienna, Austria [poster] [meeting canceled due to COVID-19]
53. Endrighi R., Zhao Y., **Kumar D**., Hughes R.B., and Borrelli B. Changes in Physical and Mental Health-Related Quality of Life After Quitting Smoking in Individuals with Mobility Impairments. Society of Behavioral Medicine 41st Annual Meeting & Scientific Sessions, San Francisco, CA, April 1-4, 2020 [poster] [meeting canceled due to COVID-19]
54. **Kumar D**, Peloquin C, Stokes A, Markino LN, Camarinos J, Felson DT, Dubreuil M. Physical therapy is associated with reduced opioid utilization in people with knee osteoarthritis. *J Orthop Sports Physical Therapy* 2020 Jan American Physical Therapy Association Combined Sections Meeting, Denver, CO [platform]
55. **Kumar D**, Peloquin C, Stokes A, Markino LN, Camarinos J, Felson DT, Dubreuil M. Physical therapy and opioid use in knee osteoarthritis. *Arthritis Rheumatol* 2019 Nov. American College of Rheumatology Annual Meeting, Atlanta, GA [platform]
56. **Kumar D**, Peloquin C, Markino LN, Camarinos J, Dubreuil M, Felson DT. Physical therapy and utilization of intra-articular therapies in knee osteoarthritis: preliminary findings from a large insurance database. *Osteoarthritis Cartilage* 2019 Apr; (Suppl). Osteoarthritis Research Society International Annual Meeting, Toronto, Canada [poster]

57. **Kumar D**, \*Costello KE, Neogi T, Lewis CE, Segal D, Gross D, Nevitt M, Lewis CL, Felson DT. Sex and race related differences in ground reaction forces during walking and interactions with knee pain and osteoarthritis in a larger cohort. *Osteoarthritis Cartilage* 2019 Apr; (Suppl). Osteoarthritis Research Society International Annual Meeting, Toronto, Canada [poster]
58. **Kumar D**, \*Costello KE, \*Chan D, Tanaka M, Souza RB, Ma CB, Li X. Longitudinal changes in gait waveforms with ACL reconstruction. *Osteoarthritis Cartilage* 2019 Apr; (Suppl). Osteoarthritis Research Society International Annual Meeting, Toronto, Canada [poster]
59. \*Costello KE, Felson DT, Neogi T, Segal N, Lewis CE, Gross KD, Nevitt M, Lewis CL, **Kumar D**. Ground reaction force patterns in knees with and without pain and radiographic osteoarthritis. *Osteoarthritis Cartilage* 2019 Apr; (Suppl). Osteoarthritis Research Society International Annual Meeting, Toronto, Canada [poster]
60. \*Brown CB, Marinko LM, LaValley MP, **Kumar D**. Quadriceps strength following ACL Reconstruction Compared to Matched Uninjured Controls: A Systematic Review and Meta-analysis. 2019 Jan; American Physical Therapy Association Combined Sections Meeting (podium presentation)
61. \*Osipow J, \*Geronimo A, \*Willard T, \*Lin CJ, vBrus V, Richards J, **Kumar D**. Validation of wearable sensors for assessment of varus thrust in knee osteoarthritis. 2019 Jan; American Physical Therapy Association Combined Sections Meeting (poster)
62. **Kumar D**, Kramer J, \*Lee B, \*Patel J, \*Geronimo A, Borrelli B. Development of a Theory-based Mobile Health Physical Activity Intervention for Knee Osteoarthritis. 2019 Jan; American Physical Therapy Association Combined Sections Meeting (poster)
63. **Kumar D**, Tanaka M, \*Chan DL, Mamoto K, Simuzu T, Souza RB, Neumann J, Ma CB, Link TM, Li X. Increase in joint loading during walking after ACL reconstruction is related to early knee degeneration. 2019 Jan; American Physical Therapy Association Combined Sections Meeting (Submitted)
64. **Kumar D**, LaValley MP, Beavers DP, Guerhazi A, Eckstein F, Hunter D, DeVita P, Messier SP: Increase in patellofemoral loading is not associated with worsening symptoms or structure: Secondary analysis from the IDEA trial. *Osteoarthritis Cartilage* 2018 Apr; (Suppl). Osteoarthritis Research Society International Annual Meeting, Liverpool, UK [podium presentation]
65. **Kumar D**, Tanaka M, Ma CB, Souza RB, Li X Early Post-traumatic Knee Osteoarthritis and Loading during Walking after Anterior Cruciate Ligament Reconstruction. *J Orthop Sports Physical Therapy* 2018 Jan; 48 (1) American Physical Therapy Association Combined Sections Meeting, New Orleans, Las Vegas, NV [podium presentation]
66. **Kumar D**, \*Brus V, Lin CJ, \*Osipow J, Geronimo A, Richards J. Wearable Sensors for Assessment of Varus Thrust in Knee Osteoarthritis: A Proof of Concept. American Society of Biomechanics Annual Meeting, Rochester, MN, 2018 [poster]
67. **Kumar D**, Beavers D, DeVita P, Messier S. Effects of weight-loss on patellofemoral loading in overweight and obese adults with patellofemoral osteoarthritis: Secondary analysis from the IDEA randomized trial. *Osteoarthritis Cartilage* 2017 Apr; (Suppl). Osteoarthritis Research Society International Annual Meeting, Las Vegas, NV [poster]
68. **Kumar D**, Link TM, Majumdar S, Souza RB. Vastus medialis intramuscular fat is associated with increase in MRI degeneration of the knee over 3-years. *Osteoarthritis Cartilage* 2017 Apr; (Suppl). Osteoarthritis Research Society International Annual Meeting, Las Vegas, NV [poster]
69. **Kumar D**, Tanaka M, Ma B, Souza RB, Li X. Degeneration of patellofemoral and tibiofemoral compartments following ACL reconstruction and associated gait mechanics: a longitudinal 2-year study. *Osteoarthritis Cartilage* 2017 Apr; (Suppl). Osteoarthritis Research Society International Annual Meeting, Las Vegas, NV [poster]
70. **Kumar D**. Knee loading is lower during mindful walking compared to regular walking: A preliminary study. *Osteoarthritis Cartilage* 2017 Apr; (Suppl). Osteoarthritis Research Society International Annual Meeting, Las Vegas, NV [poster]
71. **Kumar D**. mHealth tool to support assessment of Community-based mindful walking knee OA. Delaware CTR ACCEL Annual Meeting, Newark, DE, 2017 [podium presentation]
72. **Kumar D**, Segev S, Calixto N, Nardo L, Li X, Link TM, Majumdar S, Souza RB: Abnormal tibiofemoral contact kinematics are related to superficial cartilage damage. *Osteoarthritis Cartilage*

- 2016 Apr; (Suppl). Osteoarthritis Research Society International Annual Meeting, Amsterdam, Netherlands [poster]
73. \*Atkinson S, Krug R, **Kumar D**: Lean area and intramuscular fat fraction of hip abductors in HIV-infected and uninfected older men. *J Orthop Sports Physical Therapy* 2016 Jan; 46 (1) American Physical Therapy Association Combined Sections Meeting, Las Vegas, NV [poster]
  74. **Kumar D**, Souza RB, Su F, Wu D, Pedroia V, Ma B, Li X: Longitudinal changes in frontal plane mechanics and early cartilage degenerations in people with ACL reconstruction. *J Orthop Sports Physical Therapy* 2016 Jan; 46 (1) American Physical Therapy Association Combined Sections Meeting, Las Vegas, NV [podium presentation]
  75. Gallo M, Pedroia V, Wyatt C, **Kumar D**, Link TM, Souza RB, Majumdar S: Voxel based T1 $\rho$  and T2 relaxation times are associated with hip osteoarthritis progression. *Proceedings of the Orthopedic Research Society*, Orlando, FL 2016 [podium presentation]
  76. **Kumar D**, Wyatt C, Okazaki N, Chiba C, Lee S, Link TM, Souza RB, Majumdar S: Demographic and biomechanical factors related to structural progression of hip osteoarthritis over 18 months. *Osteoarthritis Cartilage* 2015 Apr; (Suppl). Osteoarthritis Research Society International Annual Meeting, Seattle, WA [poster]
  77. **Kumar D**, Wise B, Majumdar S, Souza RB, Lane NE: Vibratory deficits in individuals with and without mild-moderate radiographic hip osteoarthritis. *Osteoarthritis Cartilage* 2015 Apr; (Suppl). Osteoarthritis Research Society International Annual Meeting, Seattle, WA [poster]
  78. Segev S, **Kumar D**, Nardo L, Link TM, Majumdar S, Souza RB: Abnormal tibiofemoral contact mechanics in subjects with medial and lateral compartment articular cartilage lesions. *Osteoarthritis Cartilage* 2015 Apr; (Suppl). Osteoarthritis Research Society International Annual Meeting, Seattle, WA [poster]
  79. Calixto NE, Nardo L, **Kumar D**, Souza RB, Li X, Link TM, Majumdar S: Examining the relationships between degenerative anterior cruciate ligament lesions and patellofemoral cartilage integrity with quantitative magnetic resonance imaging parameters. *Osteoarthritis Cartilage* 2015. Apr; (Suppl). Osteoarthritis Research Society International Annual Meeting, Seattle, WA [poster]
  80. **Kumar D**, Majumdar S, Souza RB, Hecht FM: Short-Term Changes with Weight-Loss in MRI Markers of Knee Cartilage Composition & Quadriceps Adiposity, & Serum Markers of Adiposity & Inflammation: a Pilot Study. *Proceedings of the ISMRM 8<sup>th</sup> International Workshop on Imaging Based Measures of Osteoarthritis*, Pacific Grove, CA Sep 2015 [poster]
  81. **Kumar D**, Schafer A, Heilmeyer U, Li X, Kazakia G: Change in Knee Cartilage T1 $\rho$  & T2 Relaxation Times with Roux-en-Y Gastric Bypass Surgery in Women: a Feasibility Study. *Proceedings of the ISMRM 8<sup>th</sup> International Workshop on Imaging Based Measures of Osteoarthritis*, Pacific Grove, CA Sep 2015 [poster]
  82. Pedroia V, Su F, **Kumar D**, Souza RB, Ma BC, Li X, Majumdar S: T1 $\rho$  voxel based relaxometry for the local evaluation of the knee cartilage. *Proceedings of the International Society for Magnetic Resonance in Medicine*, Toronto, CA, 2015 [podium presentation]
  83. Calixto NE, **Kumar D**, Karupppasamy S, Singh JS, Schooler J, Nardo L, Li X, Souza RB, Link TM, Majumdar S: T1 $\rho$  MRI in Cartilage of Non-Osteoarthritis Knees with and without Posterior Meniscus Lesions. *Proceedings of the Orthopaedic Research Society Annual Meeting, 2015, Las Vegas, NV* [podium presentation]
  84. Calixto NE, Nardo L, **Kumar D**, Souza RB, Li X, Link TM, Majumdar S: Using the ratio of T1 $\rho$  and T2 MR parameters to examine the relationship between anterior cruciate ligament (ACL) defects and patellofemoral cartilage integrity. *Proceedings of the International Society for Magnetic Resonance in Medicine*, Toronto, Canada, 2015 [poster]
  85. **Kumar D**, Nardo L, Calixto NE, Singh J, Link TM, Majumdar S: Vigorous but not moderate physical activity is related to structural progression of knee osteoarthritis over one year. *Osteoarthritis Cartilage* 2014 Apr; 22(Suppl). Osteoarthritis Research Society International Annual Meeting, Paris, France [podium presentation]
  86. **Kumar D**, MacLeod TD, K Subburaj, Singh J, Calixto NE, Li X, Link TM, Majumdar S, Souza RB: Walking knee loads show opposite association with cartilage composition in people with knee OA compared to young healthy subjects. *Osteoarthritis Cartilage* 2014 Apr; 22(Suppl). Osteoarthritis Research Society International Annual Meeting, Paris, France [poster]
  87. **Kumar D**, Wyatt C, Chiba K, Lee S, Link TM, Majumdar S, Souza RB: Anatomic correlates of reduced hip extension during walking in mild-moderate radiographic hip osteoarthritis.

- Osteoarthritis Cartilage* 2014 Apr; 22(Suppl). Osteoarthritis Research Society International Annual Meeting, Paris, France [poster]
88. Lansdown D, **Kumar D**, Wyatt C, Souza RB, K Subburaj, Lee S, Nardo L, Link TM, Majumdar S, Vail TP: Quantitative cartilage imaging and patient-reported outcome measures for four common findings of femoroacetabular impingement. *Osteoarthritis Cartilage* 2014 Apr; 22(Suppl). Osteoarthritis Research Society International Annual Meeting, Paris, France [poster]
  89. Calixto NE, **Kumar D**, K Subburaj, Singh JS, Schooler J, Nardo L, Souza RB, Link TM, Majumdar S: Medial meniscus posterior horn zones show different response to static loading in subjects with knee osteoarthritis compared to controls. *Osteoarthritis Cartilage* 2014 Apr; 22(Suppl). Osteoarthritis Research Society International Annual Meeting, Paris, France [poster]
  90. **Kumar D**, Macleod TD, Li X, Link TM, Majumdar S, Souza RB: Relationships between cartilage MR relaxation times and structural, functional and biomechanical outcomes in knee osteoarthritis. *J Orthop Sports Physical Therapy* 2014 Jan; 44 (1): A23. American Physical Therapy Association Combined Sections Meeting, Las Vegas, NV [poster]
  91. **Kumar D**, Lai A, Korn N, Noworolski S, Majumdar S, Hecht F, Souza RB: Effect of weight loss on knee cartilage MR relaxation times, disability and systemic and thigh adiposity. *J Orthop Sports Physical Therapy* 2014 Jan; 44 (1): A143. American Physical Therapy Association Combined Sections Meeting, Las Vegas, NV [poster]
  92. Lee S, Nardo L, Heilmeyer U, **Kumar D**, Kretzchmar M, Yu A, Majumdar S, Lane NE, Link TM: How common are hip labral tears? Comparison of individuals with and without hip symptoms. European Congress of Radiology, Vienna, Austria, 2014 [podium presentation]
  93. Wyatt CB, **Kumar D**, Karupppasamy S, Narayanan D, Lee S, Nardo L, Link TM, Vail T, Souza RB, Majumdar S: Hip T1rho and T2 Relaxation Times in Individuals with and Without Cartilage Lesions. Proceedings of the International Society for Magnetic Resonance in Medicine, Milan, Italy, 2014 [poster]
  94. Wyatt CB, Kretzchmar M, **Kumar D**, Karupppasamy S, Link TM, Vail T, Souza RB, Majumdar S: Quantitative VTE-T2\* Imaging of the Hip Labrum. Proceedings of the International Society for Magnetic Resonance in Medicine, Milan, Italy, 2014 [poster]
  95. Yang H, Padoia V, Riviere J, Zhang Y, **Kumar D**, Link TM, Ma B, X Li: MR T1rho quantification of knee cartilage lesion: correlated with arthroscopic evaluation. European Congress of Radiology, Vienna, Austria, 2014 [podium presentation]
  96. **Kumar D**, McDermott K, Feng H, Goldman V, Luke A, Souza RB, Hecht F: Effect of Training in Chi-running on Running Biomechanics. *Med Sci Sports Exerc* 2013 45(5) American College of Sports Medicine Annual Meeting, Indianapolis, IA [poster]
  97. **Kumar D**, Karampinos K, Lin W, Macleod T, Nardo L, Subburaj K, Singh J, Link TM, Majumdar S, Souza RB: Association of thigh muscle morphology, intramuscular fat and strength with knee meniscus and cartilage lesions, radiographic osteoarthritis, and disability. *J Orthop Sports Physical Therapy* 2013 Jan;43 (1): A28. American Physical Therapy Association Combined Sections Meeting, San Diego, CA [podium presentation]
  98. Mohan G, Schooler J, **Kumar D**, Link TM, Majumdar S. Responsiveness of compartment-specific quantitative cartilage MRI measures in knee OA patients. *Osteoarthritis Cartilage* 2013 Apr; 21(Suppl): S187. Osteoarthritis Research Society International Annual Meeting, Philadelphia, PA [poster]
  99. Macleod TD, **Kumar D**, Subburaj K, Wu S, Li X, Link TM, Majumdar S, Souza RB: Magnetic Resonance Analysis of Loaded Meniscus Kinematics and Tibiofemoral Contact Area. *J Orthop Sports Physical Therapy* 2013 Jan; 43 (1): A110. American Physical Therapy Association Combined Sections Meeting, San Diego, CA [poster]
  100. Lee S, Nardo L, Lai A, **Kumar D**, Wyatt CR, Souza RB, Lane NE, Majumdar S, Link TM: Scoring Hip Abnormalities using MR images (SHAMRI): a Novel Hip Whole Joint Osteoarthritis Evaluation System. *Osteoarthritis Cartilage* 2013 Apr; 21(Suppl): S 221-222. Osteoarthritis Research Society International Annual Meeting, Philadelphia, PA [podium presentation]
  101. Schooler J, **Kumar D**, Li X, Link TM, Majumdar S: The Relationship between Pain and MR Relaxation in Knee Articular Cartilage. *Osteoarthritis Cartilage* 2013 Apr; 21 (Suppl):S194-195. Osteoarthritis Research Society International Annual Meeting, Philadelphia, PA [poster]
  102. Singh J, Schooler J, **Kumar D**, Subburaj K, Nardo L, Stiers KB, Li X, Link TM, Souza RB, Majumdar S: Evaluation of T1p Relaxation Times in Meniscal Tears during Static Loading.

- Osteoarthritis Cartilage* 2013 Apr; 21(Suppl): S186. Osteoarthritis Research Society International Annual Meeting, Philadelphia, PA [poster]
103. McDermott K, Goldman V, Feng H, **Kumar D**, Mehling W, Souza RB, Luke A, Hecht F: A Pilot Randomized Control Trial of ChiRunning: The Running Against Pre-Hypertension Trial (RAPT). *Proceedings of the International Council of Complementary Medicine Research*, London, UK, 2013 [podium presentation]
  104. Schooler J, **Kumar D**, Li X, Link TM, Majumdar S: The Effect of Bone Marrow Edema on Knee Articular Cartilage Lamellar MR Relaxation Time. *Proceedings of the International Society for Magnetic Resonance in Medicine*, Salt Lake City, UT, 2013 [poster]
  105. Lee S, Nardo L, Lai A, **Kumar D**, Wyatt CR, Souza RB, Lane NE, Majumdar S, Link TM: Scoring Hip Abnormalities using MR images (SHAMRI): a Novel Hip Whole Joint Osteoarthritis Evaluation System. *Proceedings of the European College of Rheumatology*, Vienna, Austria, 2013 [podium presentation]
  106. **Kumar D**, Dillon AB, K Subburaj, Link TM, Li X, Majumdar S, Souza RB: MRI T1rho Relaxation Times at 3-Tesla and Functional Loading at the Hip in Femoroacetabular Impingement. *Proceedings of the Orthopedic Research Society*, San Antonio, TX 2013 [poster]
  107. Wyatt CR, **Kumar D**, Subburaj K, Lian T, Narayanan D, Li X, Vail TP, Link TM, Souza RB, Majumdar S. Quantitative T1p/T2 imaging of hip cartilage at 3T in patients with OA and FAI. *Proceedings of the Orthopedic Research Society*, San Antonio, TX 2013 [poster]
  108. Romero A, Keller D, **Kumar D**, Hoppe M, Liu Y, MacLeod TD, Souza RB: Six minute walk test in patients with radiographic knee osteoarthritis: a cohort cross-sectional study. *California Physical Therapy Association Annual Conference*, Pasadena, CA, 2013 [poster]
  109. **Kumar D**, K. Subburaj; Alizai H, Wu S· Neel N· Bauer K· Luke A, Li X, Majumdar S, Link TM, Souza RB: Walking Mechanics, Cartilage Morphology and Composition in Young Healthy Subjects with Knee Varus. *J Orthop Sports Physical Therapy* 2012 Jan; 42 (1) : A31. American Physical Therapy Association Combined Sections Meeting, Chicago, IL [podium presentation]
  110. **Kumar D**, K Subburaj, Lin W· Alizai H, Wu S· Bauer K· Neel N· Luke A, Li X, Majumdar S, Souza RB, Link TM: Static and dynamic alignment, muscle balance and cartilage composition in young adults. *Osteoarthritis Cartilage* 2012 Apr; 20 (Suppl): S98-99. Osteoarthritis Research Society International Annual Meeting, Barcelona, Spain [poster]
  111. **Kumar D**, K Subburaj, Link TM, Souza RB, Majumdar S: Muscle Imbalance, Functional Loading and Cartilage Composition at the Knee. *Med Sci Sports Exerc* 2012 Vol 44:5 (Supp). American College of Sports Medicine Annual Meeting, San Francisco, CA [poster]
  112. Dillon AB· **Kumar D**, Luke A, Link TM, Souza RB, Majumdar S: Hip Function in Femoroacetabular Impingement. *Med Sci Sports Exerc* 2012 Vol 44:5 (Supp). American College of Sports Medicine Annual Meeting, San Francisco, CA [poster]
  113. **Kumar D**, K Subburaj, Li X, Link TM, Souza RB, Majumdar S: Association of MR Relaxation Times with Muscle Morphology and Functional Loading at the Knee. *OA Biomarker Global Initiative, OARSI*, Hilton Head, SC, 2012. [podium presentation]
  114. K Subburaj, **Kumar D**, Li X, Link TM, Souza RB, Majumdar S: Effect of Static- and Cyclic-Loading on Meniscus MR Relaxation Times. *Proceedings of the International Society for Magnetic Resonance in Medicine*, Melbourne, Australia, 2012. [poster]
  115. Wu S· **Kumar D**, Karupppasamy S, Jungmann P, Nardo L, Luke A, Link TM, Majumdar S, Li X, Souza RB: Age related changes in T1rho and T2 relaxation times of knee cartilage. *Proceedings of the Orthopedic Research Society*, San Francisco, CA 2012. [poster]
  116. **Kumar D**, K. Subburaj; Alizai H, Wu S· Neel N· Bauer K· Luke A, Li X, Majumdar S, Link TM, Souza RB: Articular and meniscal cartilage respond differently to functional loading. *Proceedings of the Orthopedic Research Society*, San Francisco, CA 2012 [poster]
  117. Kothari A· Souza RB, Wu S, **Kumar D**, Ma B, Li X: Abnormal joint kinematics may accelerate degeneration of ACL reconstructed knees: correlation of MR T1rho and motion analysis. *Proceedings of the Orthopedic Research Society*, San Francisco, CA 2012 [poster]
  118. Macleod TD, **Kumar D**, Subburaj K, Wu S, Li X, Link TM, Majumdar S, Souza RB: Magnetic Resonance Imaging of Meniscal Translation and Tibiofemoral Contact Area in Knee Flexion. *California Physical Therapy Association Annual Conference*, Santa Clara, CA, 2012 [poster]
  119. **Kumar D**, Karampinos K, Lin W· Macleod T, Nardo L, Subburaj K, Singh J, Link TM, Majumdar S, Souza RB: Functional Impairments in Knee Osteoarthritis and Intramuscular Fat Infiltration of

- Thigh Muscles. *Annual Imaging Research Symposium*, University of California San Francisco, San Francisco, CA, 2012 [poster]
120. **Kumar D**, Zarins Z, Schooler J, Virayavanich W, Li X, Link T, Majumdar S. Frontal Plane Malalignment and Cartilage T1ρ and T2 relaxation times in people with knee osteoarthritis. *Osteoarthritis Cartilage* 2011 Apr; 19 (Suppl) S 176. Osteoarthritis Research Society International Annual Meeting, San Deigo, CA [poster]
  121. **Kumar D**, Zarins Z, Schooler J, Li X, Link T, Majumdar S: Meniscal Tears are Associated with Underlying Cartilage and Trabecular Bone Changes. *Osteoarthritis Cartilage* 2011 Apr; 19 (Suppl 1)S 164-165. Osteoarthritis Research Society International Annual Meeting, San Deigo, CA [poster]
  122. Rudolph KS, **Kumar D**, Reisman D. Neuromuscular Adaptation in Medial Knee Osteoarthritis. *Osteoarthritis Cartilage* 2011 Apr; 19 (Suppl 1)S 210-211. Osteoarthritis Research Society International Annual Meeting, San Deigo, CA [poster]
  123. K Subburaj, **Kumar D**, Alizai H, Souza RB, Majumdar S. Acute Effect of Running on Knee Cartilage MR Relaxation times in Young Healthy Adults. *Osteoarthritis Cartilage* 2011 Apr; 19 (Suppl 1)S 184-185. Osteoarthritis Research Society International Annual Meeting, San Deigo, CA [poster]
  124. Winters JD, **Kumar D**, Swanik CB, Rudolph KS: Rate of muscle force development and instability in knee osteoarthritis. *Med Sci Sports Exerc* 2011, Vol 43:5 (Supp). American College of Sports Medicine Annual Meeting, Denver, CO. [poster]
  125. Dillon AB, **Kumar D**, Luke A, Link TM, Souza RB, Majumdar S: The Effect of Femoroacetabular Impingement on Hip Function Assessed By 3D Motion Analysis. *Annual Imaging Research Symposium*, University of California San Francisco, San Francisco, CA, 2011 [poster]
  126. **Kumar D**, K Subburaj, Li X, Link TM, Souza RB, Majumdar S Walking Mechanics, Cartilage Morphology and Composition in Young Healthy Subjects with Knee Varus. *Annual Imaging Research Symposium*, University of California San Francisco, San Francisco, CA, 2011 [poster]
  127. **Kumar D**, Rudolph KS, Manal KT: Medial and Lateral Articular Loading Strategies in Knee Osteoarthritis. *Proceedings of the Orthopedic Research Society*. New Orleans, LA, march 2010 [poster]
  128. **Kumar D**, Rudolph KS, Manal K: Articular Loading at the Knee in People with Osteoarthritis. *Center for Biomedical Engineering and Research Day*, University of Delaware. Newark, DE. May 2010. [podium presentation]
  129. **Kumar D**, Rudolph KS: Neuromuscular Control of the Knee in People with Knee OA. *J Orthop Sports Physical Therapy* 2009 39 (1) A 52. American Physical Therapy Association Combined Sections Meeting, Las Vegas, NV [poster]
  130. **Kumar D**, Rudolph KS, Manal KT: Muscle Force in Walking in Medial Knee Osteoarthritis. *Proceedings of the Orthopedic Research Society*. Las Vegas, NV. February, 2009 [poster]
  131. **Kumar D**, Rudolph KS, Manal K: An EMG-Driven Musculoskeletal Modeling Approach to Estimate Articular Loading at the Knee. *Center for Biomedical Engineering and Research Day*, University of Delaware. May 2009. [poster]
  132. **Kumar D**, Reisman DR, Rudolph KS: Adaptation to Repeated Perturbations in Medial Knee Osteoarthritis. *Proceedings of the Society for Neuroscience*. Washington, DC. November, 2008. [poster]
  133. **Kumar D**, Rudolph KS, Manal KT. Force changes in Vastus Medialis during gait: Relationship with EMG and impact on co-contraction estimates- a proof of concept. *Computational Methods in Orthopedic Biomechanics. Pre-ORS Symposium*. San Francisco, CA. March, 2008. [podium presentation]
  134. **Kumar D**, Schmitt LC, Rudolph KS. Influence of Self-Reported Instability on Neuromuscular Responses in People with Medial Knee Osteoarthritis. *Proceedings of the Orthopedic Research Society*, San Francisco, CA. March, 2008. [poster]
  135. **Kumar D**, Reisman DR, Rudolph KS: Proactive and Reactive Responses to Repeated Perturbations in Knee Osteoarthritis. *Annual Neuromuscular Plasticity Symposium*. University of Florida, Gainesville, FL. Dec 2008. [poster]

136. **Kumar D**, Reisman D, Rudolph KS: Adaptation to Perturbed Walking in People with Knee Osteoarthritis. *Center for Biomedical Engineering and Research Day*, University of Delaware. Newark, DE. May 2008. [podium presentation]
137. Hinsey M, Swanik CB, Rudolph KS, **Kumar D**: Knee Joint Stiffness Between Healthy and Osteoarthritis Subjects. *Center for Biomedical Engineering and Research Day*, University of Delaware. Newark, DE, 2008. [poster]
138. Rudolph KS, **Kumar D**: Adaptation during Disturbed Walking In Medial Knee Osteoarthritis and Healthy: A Case Comparison. *Center for Biomedical Engineering and Research Day*, University of Delaware, 2007. [poster]
139. Rudolph KS, White J, **Kumar D**, Sun JQ. Use of a Smart Knee Brace to Challenge Walking. Innovations in Balance and Locomotor Rehabilitation: The Translation from Fundamental Science to Clinical Applications. *The Jewish Rehabilitation Hospital and the Gustav Levinschi Foundation*. Montreal, Quebec July 13, 2007. [poster]
140. Veqar Z, **Kumar D**: Role of a sensorimotor training and a cervical stabilization exercise program in the correction of forward head posture in male visual display unit operators, *Gait & Posture* 2005;21 (S1): S135. International Society for Postural and Gait Research Meeting, Marseilles, France [poster]

## Symposia, Invited or Organized

1. **#Kumar D**, Frey-Law L, Carlesso L: Pain Mechanisms in People with Knee OA: Insights from Phenotypes, Movement-Evoked Pain and Sex. *American Physical Therapy Association Combined Sections Meeting*, 2024 (# - Equal contribution from all authors) [Organized]
2. **Kumar D**: Exercise and Musculoskeletal Pain. In “Musculoskeletal Pain: Causes and Cures”. *New Approaches to Accelerated Discovery in the Musculoskeletal System. Musculoskeletal Biology and Bioengineering Gordon Research Conference*, Aug 7-12, 2022 Andover, NH, USA [Invited]
3. **Kumar D**: “Clinical evaluation of functional outcomes in knee osteoarthritis”, *Osteoarthritis and Pain Symposium*, Boston University School of Medicine, December 7, 2020 [Invited]
4. **Kumar D**: “Understanding influence of biomechanics on osteoarthritis”, *Osteoarthritis and Pain Symposium*, Boston University School of Medicine, December 4, 2020 [Invited]
5. **Kumar D**: “What can biomechanical or functional measures tell us about early OA?” Part of Workshop on “Early Osteoarthritis: Detection, Classification, and Interventions”. *OARSI Young Investigator Pre-Congress Workshop*, 2021, Osteoarthritis Research Society International Annual Meeting, Virtual [Invited]
6. **Kumar D**: “Muscle size, adiposity, and function in osteoarthritis. Skeletal Muscle in health, disease, and therapy”, *P30/P50 Skeletal Muscle Symposium*, University of California, San Francisco, March 13, 2017 [Invited]
7. **Kumar D**: “Rehabilitation Approaches in Knee Osteoarthritis”, *Osteoarthritis and Pain Symposium*, Boston University School of Medicine, December 20, 2017 [Invited]
8. **#Kumar D**, Souza RB, Ward SR, Warden SJ: Response of Cartilage, Bone, and Muscle to Functional Loading: Applications for the Clinic. *American Physical Therapy Association Combined Sections Meeting*, 2014. Research Section Basic Course. (# - Equal contribution from all authors) [Organized]

## Courses, Book Chapters, Etc.

1. Liew J, **Kumar D**, Neogi T: Treatment of Osteoarthritis, *Kelley and Firestein’s Textbook of Rheumatology*, 12<sup>th</sup> edition
2. Misra D, **Kumar D**, Neogi T: Treatment of Osteoarthritis. *Kelley and Firestein’s Textbook of Rheumatology*, 11<sup>th</sup> edition
3. **Kumar D**, Seitz A: Clinical Imaging: Imaging of the Extremities, Independent Study Course 27.3.2, Orthopaedic Section, APTA, 2017

## Invited Talks, Academic

1. Panelist on “Reimbursement and Utilization - Evidence Generation: Discussions with Caregivers, Access Leaders, HCPs and Payers” in the Digital Implementation Summit, Pfizer Inc, Cambridge, MA, November 8, 2023
2. “Digital Health in Chronic Musculoskeletal Pain: Challenges and Opportunities”, Department of Physical Therapy Grand Rounds, Sargent College of Health and Rehabilitation Sciences, Boston University, Boston, MA, USA, October 6, 2023
3. “Biomechanics of knee osteoarthritis: The state-of-the-art”, Pt. Deen Dayal Upadhyaya Institute for the Physically Handicapped, Delhi University, New Delhi, India, December 15, 2022
4. “Exercise and management of chronic knee pain: Can we do better?”, Rheumatology Fellows Lecture, Boston University School of Medicine, Boston, MA, December 2, 2022
5. “Movement and pain in knee osteoarthritis”, BIOMS Seminar, University of Delaware, Newark, DE, USA, November 16, 2022
6. “Exercise and management of chronic knee pain”, Case Rounds, Department of Orthopedic Surgery, Boston Medical Center, September 14, 2022
7. “An ongoing journey to understand altered biomechanics in people with knee osteoarthritis”, Graduate Seminar, Department of Kinesiology, University of Massachusetts Amherst, USA, March 21, 2022
8. “An ongoing journey to understand altered biomechanics in people with knee osteoarthritis”, Biomechanics Graduate Seminar, Department of Kinesiology, University of Waterloo, Canada, March 2, 2022
9. “Movement and pain in knee osteoarthritis: Insights from digital technologies”, Hinda and Arthurs Marcus Institute for Aging Research, Harvard University, Research in Progress seminar, March 10, 2021
10. “mHealth Physical Activity Intervention for People with Knee Osteoarthritis and Comorbidities”, High Tech and High Touch: Digital Innovations, Research On Tap, Boston University, March 20, 2019
11. “Mindful Movement and Knee Osteoarthritis”, ChiRunning Instructor Weekend, Charlotte, NC, November 10, 2018]
12. “mHealth Solutions for Monitoring and Enhancing Physical Activity in People with Knee Osteoarthritis”, Mobile and Electronic Health ARC (ME-ARC) Presentation, GDSM Science Day, Boston University Dental School, March 15 2018
13. “Movement & Applied Imaging Lab”, Qualisys User Group Meeting, BU Sargent College, March 24, 2017
14. “Early Identification and Early Intervention in Osteoarthritis: From Tissue to Function”, Division of Rheumatology, Tufts University School of Medicine, August 29, 2017
15. “Movement & Applied Imaging Lab”, Spring SCERCH Symposium, Boston University, March 2, 2017
16. “mHealth aid for interventions to improve quantity and quality of physical activity: Work in Progress”, mHealth-Pre ARC, Boston University, October 17, 2016
17. “Quantifying movement and tissue health to improve function in osteoarthritis”, Health and Disability Research Institute, Boston University School of Public Health, October 11, 2016
18. “Grand Rounds”, Physical Therapy and Human Movement Sciences, Feinberg School of Medicine, Northwestern University, Chicago, IL, May 14<sup>th</sup>, 2015

## Invited Talks, Community

1. “Knee osteoarthritis: What you “kneed” to know!”, Brookline Council on Aging, Brookline, MA, May 14, 2018
2. “Self-Management of knee pain”, Peterborough Senior Center, Boston, MA. December 14, 2017
3. “Knee osteoarthritis: What you “kneed” to know!”, Stonestown Family YMCA, San Francisco, CA, October 12, 2011
4. “Hip Osteoarthritis: Be “hip” about your hip!”, Stonestown Family YMCA, San Francisco, CA, November 30, 2011
5. Multiple presentations on knee osteoarthritis at Senior Center and YMCA location in Newark, DE (2006-2010)

## Teaching (# indicates new course development)

### Boston University\*

#### Primary or Co-Instructor

Course #	Name	Role	Program	Class size	Semesters
HP727	Instrumentation for Human Motion	Instructor	PhD Rehabilitation Sciences	6-10	Spring 2024, Spring 2021, Fall 2019, Fall 2017#
RS750	Research Design	Co-Instructor	PhD Rehabilitation Sciences	20	Spring 2023#
HP151	Introduction to Health Professions	Instructor	Undergraduate	9-13	Spring 2023, Fall 2019, Fall 2018
HP891	Movement Science Seminar	Co-Instructor	PhD Rehabilitation Sciences	8-10	Spring 2020, Fall 2019#
RS911	Directed Research	Instructor	PhD Rehabilitation Sciences	1-2	Spring 2020, Fall 2019
RS910	Directed Reading	Instructor	PhD Rehabilitation Sciences	1-2	Fall 2018
PT781	Academic Practicum	Mentor	DPT	1-2	Spring 2024, Fall 2018, Spring 2018
RS890	Doctoral Seminar	Co-Instructor	PhD Rehabilitation Sciences	14	Fall 2016#

#### Guest Lectures

- PT522 Musculoskeletal System II, Lectures on “Hip Osteoarthritis” and “Knee Osteoarthritis”, Doctor of Physical Therapy, Boston University, Spring 2024, Spring 2023
- PT520 Functional Anatomy, Lecture on “Gait”, Doctor of Physical Therapy, Boston University, Summer 2023, Summer 2022, Summer 2021, Summer 2020, Summer 2019, Summer 2017
- RS650 Foundation of Rehabilitation Science, Lecture on “Movement & Applied Imaging Lab”, PhD in Rehabilitation Sciences, Boston University, Fall 2023, Fall 2021
- PT634 Diagnostic Procedures for Rehabilitation Professionals, Lecture on Hip and Knee Imaging, Doctor of Physical Therapy, Boston University, Fall 2023, Fall 2022, Fall 2019, Fall 2018
- RS890 Doctoral Seminar in Rehabilitation Sciences, Lecture on “How to find a postdoc”, PhD in Rehabilitation Sciences, Boston University, Fall 2017

### Other Institutions

#### Primary or Co-Instructor

- Evidence Based Practice IV, Mentor, Doctor of Physical Therapy, Medical University of South Carolina, Spring 2016
- PT766 Evidence Based Practice III, Instructor, Doctor of Physical Therapy, Medical University of South Carolina, Fall 2015
- PT209-910 Evidence Based Practice, Faculty Mentor, Doctor of Physical Therapy, University of California, San Francisco, Spring 2013, Spring 2011, Spring 2010

#### Guest Lectures

- Orthopaedic Biomechanics, Lecture on “Osteoarthritis: Mechanics, Tissue, and Function”, Northeastern University, Spring 2018, Spring 2017
- Orthopaedic Residency for Physical Therapists, Lecture on “Osteoarthritis”, Medical University of South Carolina, Summer 2016
- PT728 Imaging and Electrodiagnosis, Lectures on “Knee Imaging”, “ Hip Imaging”, Doctor of Physical Therapy, Medical University of South Carolina, Fall 2015
- Lecture on Loading and Cartilage, Masters in Biomedical Imaging, University of California, San Francisco, Spring 2014

- PT741 Musculoskeletal Pathokinesiology, Lecture on Human Gait, Doctor of Physical Therapy, University of California, San Francisco, Fall 2012
- PT210 Radiology for Physical Therapists, Lecture on Radiography, Lecture on Cartilage Imaging, Doctor of Physical Therapy, University of California, San Francisco, Fall 2011
- PHYT604 Functional Anatomy and Biomechanics, Lecture on Normal Human Gait, Lecture on Pathological Human Gait, Doctor of Physical Therapy, University of Delaware, Fall 2009
- BMSC667 EMG Theory and Practice, Lab Instructor, PhD Biomechanics and Movement Sciences, University of Delaware, Summer 2008
- Visiting Lecturer for Gait Mechanics, Tissue Mechanics, Biomechanics of Prosthetics and Orthotics, Implant Mechanics, Master of Physical Therapy (Musculoskeletal), Jamia Hamdard, New Delhi, India, 2003-2005
- Multiple courses for students with academic difficulties, Tutor for Musculoskeletal PT, Neurologic PT, Cardiopulmonary PT, Pediatric PT, Pt. D.D.U.I.P.H, New Delhi, India, 2003

## Mentoring

Trainee and affiliation during training	My role and training period	Trainee current position
<b>Junior Faculty</b>		
Kathryn Bacon, PhD <i>Boston University School of Medicine</i>	Co-Mentor (2019-Current)	--
<b>Postdoctoral Researchers</b>		
Baekdong Cha, PhD <i>Boston University</i>	Primary mentor (2022-2023)	Senior Researcher, Korea Institute of Machinery & Materials, South Korea
Kerry Costello, PhD <i>Boston University</i>	Primary mentor (2018-2022)	Assistant Professor (Tenure Track), Aerospace & Mechanical Engineering, University of Florida, FL, USA
<b>Research Doctorate Students</b>		
Yiwen Yang, SPT <i>DPT/PhD, Boston University</i>	Primary mentor (2024-Current)	--
Rhodora Therese G. Torres, MS, PT <i>PhD in Rehabilitation Sciences, Boston University</i>	Primary mentor (2024-Current)	--
Hosea Boakye, PT, MPH <i>PhD in Rehabilitation Sciences, Boston University</i>	Primary mentor (2023-Current)	--
Xingjian Han <i>PhD in Computer Science, Boston, University</i>	Committee member (2021-Present)	--
Soyoung Lee, MS <i>PhD in Rehabilitation Sciences, Boston University</i>	Primary mentor (2019-Current)	Postdoc, University of Maryland, MD USA (accepted)
Nirali Shah, PT, MPT <i>PhD in Rehabilitation Sciences, Boston University</i>	Primary mentor (2018-2023)	Postdoc, University of Michigan, MI, USA
Jing-Sheng Li, PT, PhD <i>PhD in Rehabilitation Sciences, Boston University</i>	Committee member (2016-2018)	Postdoc, University of Washington, WA, USA
<b>Clinical Doctorate Students</b>		
Michele Okamura <i>Doctor of Physical Therapy, Boston University</i>	Primary mentor (2022-2024)	DPT student, Boston University

Yiwen Yang <i>Doctor of Physical Therapy, Boston University</i>	Primary mentor (2021-2024)	DPT/PhD student, Boston University
James Kim <i>Doctor of Medicine, Boston University</i>	Primary mentor (2022-2023)	MD student, Boston University
Caroline Montanero <i>Doctor of Physical Therapy, Boston University</i>	Primary mentor (2020-2021)	Physical Therapist
Akshat Mehta, DPT <i>Doctor of Physical Therapy, Boston University</i>	Primary mentor (2020-2021)	Physical Therapist
Conlan Brown, DPT <i>Doctor of Physical Therapy, Boston University</i>	Primary mentor (2017-2018)	Physical Therapist
Julie Osipow, DPT <i>Doctor of Physical Therapy, Boston University</i>	Primary mentor (2018)	Physical Therapist
Megan Lee, DPT <i>Doctor of Physical Therapy, Boston University</i>	Primary mentor (2017)	Physical Therapist
Sara Atkinson, OTD <i>Doctor of Occupational Therapy, Medical University of South Carolina</i>	Primary mentor (2015-2015)	Occupational Therapist
John Battles, DPT <i>Doctor of Physical Therapy, University of Delaware</i>	Co-mentor (2007-2009)	Physical Therapist
Mark White, DPT <i>Doctor of Physical Therapy, University of Delaware</i>	Co-mentor (2007-2009)	Physical Therapist
<b>Master's Students</b>		
Dilinazi Duolikun <i>MS Health Physiology, Boston University</i>	Primary Mentor (2024-Current)	--
Ehyun Kim <i>MS Medical Sciences, Boston University School of Medicine</i>	Primary Mentor (2022-2023)	Lab Manager, Boston University
Gavin Yu <i>MS Medical Sciences, Boston University School of Medicine</i>	Primary Mentor (2022-2023)	Preparing for medical school
Cassandra Duda <i>MSc Human Technology in Sports Medicine, German Sports University of Cologne</i>	Primary Mentor (2022-2023)	Master's Student at Deutsche Sporthochschule Köln
Kaveh Torabian, MS <i>MS Medical Sciences, Boston University School of Medicine</i>	Primary Mentor (2021-2022)	MD student, Rush University, Chicago, IL, USA
Daniel Chan, MS <i>MS Medical Sciences, Boston University School of Medicine</i>	Primary Mentor (2020-2021)	DO student, New York Institute of Technology, NY, USA
Sofia Espinosa Marazita, MS <i>MS Medical Sciences, Boston University School of Medicine</i>	Primary Mentor (2019-2020)	MD student, University of Buffalo, NY, USA
Kyu Chan Kim, MD <i>MS Epidemiology, Boston University School of Medicine</i>	Committee member (2017)	Assistant Professor, Medicine, Boston University School of Medicine, Boston, MA, USA
Sadashiv Aggarwal, PT	Primary mentor	Physical Therapist

<i>Master of Physiotherapy, Jamia Hamdard</i>	(2004-2006)	
Ramachandran K, PT	Primary mentor	Physical Therapist
<i>Master of Physiotherapy, Jamia Hamdard</i>	(2004-2005)	
Syed Irshad Alam, PT	Primary mentor	Physical Therapist
<i>Master of Physiotherapy, Jamia Hamdard</i>	(2003-2004)	
<b>Undergraduate Students</b>		
Jason Dolinsky	Primary Mentor	Undergraduate student, Boston University
Human Physiology, Boston University	(2023-2024)	
Anushka Rathi	Primary Mentor	PhD student, University of Michigan
<i>Biomedical Engineering, Boston University</i>	(2022-Current)	
Shunzhi Ye	Primary Mentor	DPT student at Boston University
<i>BS/DPT, Boston University</i>	(2022)	
Bona Lee	Primary Mentor	DO student, Nova Southeastern University, FL, USA
<i>Human Physiology, Boston University</i>	(2016-2019)	
Timothy Willard	Primary Mentor	Senior Recruiter, Putnam Recruiting Group, CA, USA
<i>BS/DPT, Boston University</i>	(2018-2019)	
Victoria Brus	Primary Mentor	Head of Knowledge Management, Hagerty Consulting, MD, USA
<i>Behavioral Biology, Boston University</i>	(2016-2018)	
Jiten Patel	Primary Mentor	Emergency Medicine Physician, NY, USA
<i>Human Physiology, Boston University</i>	(2016-2018)	
Yvonne Lin	Primary Mentor	Entrepreneur, China
<i>BS/DPT, Boston University</i>	(2016-2018)	
Cameron Nurse	Primary Mentor	PhD Candidate, Mechanical Engineering, Vanderbilt University
<i>Biomedical Engineering, Boston University</i>	(2016-2018)	
En Liu	Primary Mentor	Unknown
<i>UCSF URAP Scholar, San Francisco State University</i>	(2013-2014)	
April Hishinuma	Primary Mentor	Director of Product, Trayt.Health, CA, USA
<i>UCSF URAP Scholar, University of California at Berkeley</i>	(2013)	
Christina Gee	Primary Mentor	Physical Therapist
<i>UCSF URAP Scholar, University of California at Berkeley</i>	(2012-2013)	
Brenda Chen	Primary Mentor	Head of Sales, Conventus Holdings Corp., CA, USA
<i>UCSF URAP Scholar, University of California at Berkeley</i>	(2011-2012)	
Anhthu Ngo	Primary Mentor	Engineering Program Manager, Apple Inc, CA, USA
<i>UCSF URAP Scholar, University of California at Berkeley</i>	(2013)	
Nishant Neel	Primary Mentor	Partner, Benchling, CA, USA
<i>Biomedical Engineering, University of Pennsylvania (Volunteer at UCSF)</i>	(2011)	
Kelly Bauer	Primary Mentor	MD student at UC Irvine, CA, USA
<i>Harvard University (Volunteer at UCSF)</i>	(2011)	
Jonathan Beri	Co-mentor	Pediatric Gastroenterologist, DE, USA
<i>Peter White Scholar, University of Delaware</i>	(2009-2010)	
Jason Schoenfeld	Co-mentor	Dermatologist, PA, USA
<i>Peter White Scholar, University of Delaware</i>	(2007-2010)	
<b>High School Students</b>		
Kanchan Gupta	Primary Mentor	High school student
<i>Bethlehem High School (volunteer at BU)</i>	(2022)	

Joshua McDermott <i>Illinois Mathematics and Science Academy (volunteer at UCSF)</i>	Primary Mentor (2014)	Unknown
<b>Full-time Staff</b>		
Ehyun Kim, MS <i>Research Fellow/Lab Manager, Boston University</i>	Supervisor (2023-Present)	--
Benjamin Senderling, MS, MBA <i>Research Fellow/Lab Manager, Boston University</i>	Supervisor (2022-2023)	PhD student, Drexel University, Philadelphia, PA, USA
Mary Gheller, MS <i>Project Manager, Boston University</i>	Co-Supervisor (2020-2022)	Project Manager, Boston University
Michael Rose, BS <i>Research Assistant, Boston University</i>	Supervisor (2020-2022)	PhD student, University of California, Los Angeles, CA, USA
Brian Friscia, MS <i>Research Fellow/Lab Manager, Boston University</i>	Supervisor (2019-2022)	Sales Representative, Visible Body, MA, USA
Alex Geronimo, MS <i>Research Fellow/Lab Manager, Boston University</i>	Supervisor (2016-2018)	Lead Software Engineer, Delsys Inc., MA, USA
Lauren Heitkamp, MS <i>Program Coordinator II, Medical University of South Carolina</i>	Supervisor (2015-2016)	Unknown

## Academic Advising

2023-2024	12 DPT students
2022-2023	15 DPT students
2021-2022	14 DPT students
2020-2021	14 DPT students
2019-2020	14 DPT students
2018-2019	14 DPT students
2017-2018	17 DPT students
2016-2017	6 DPT students
2015-2016	3 DPT students

## Service

### External

#### Ad Hoc Grant Reviews

2024	NIH National Center for Complementary and Integrative Health (NCCIH), Exploratory Clinical Trials of Mind and Body Interventions, Special Grants Review Committee
2024	NIH National Institute of Arthritis and Musculoskeletal and Skin Disease (NIAMS), Ancillary Studies to Ongoing Clinical Project, Special Grants Review Committee
2023	NIH National Institute of Arthritis and Musculoskeletal and Skin Disease (NIAMS), Ancillary Studies to Ongoing Clinical Project, Special Grants Review Committee
2023	Swiss National Science Foundation
2022-Present	Rheumatology Research Foundation, Investigator Awards and Scientist Development Awards
2022	Great Plains IDeA CRT Pilot Projects Program
2019	NIH National Institute of Arthritis and Musculoskeletal and Skin Disease (NIAMS), AMSC Member Conflict Special Emphasis Panel
2019	Dutch Arthritis Society
2019	NIH Center for Scientific Research, Musculoskeletal Rehabilitation Sciences Study Section

2018	The Wellcome Trust/DBT India Alliance, Fellowship grants
2018	NIH National Institute of Arthritis and Musculoskeletal and Skin Disease (NIAMS), Arthritis and Musculoskeletal and Skin Diseases Special Grants Review Committee
2018	Ireland Health Research Board, Applying Research into Policy & Practice Postdoctoral Fellowships
2018	Auckland DHB Charitable Trust, New Zealand, A+ TRUST Research Fund Grants

#### Ad Hoc Journal Reviews

- Nature Reviews Rheumatology
- JAMA Internal Medicine
- Arthritis and Rheumatology
- Osteoarthritis and Cartilage
- Arthritis Care and Research
- Journal of Orthopaedic and Sports Physical Therapy
- Physical Therapy Journal
- Scientific Reports
- American Journal of Sports Medicine
- Journal of Biomechanics
- Journal of Orthopaedic Research
- Journal of Rheumatology
- Arthritis Research and Therapy
- Bone
- Clinical Biomechanics
- Skeletal Radiology
- Journal of Applied Physiology
- Journal of Bone and Mineral Research
- Seminars in Arthritis and Rheumatism
- The Knee
- Asia-Pacific Journal of Sports Medicine, Arthroscopy, Rehabilitation and Technology BMC Musculoskeletal Disorders
- Magnetic Resonance Materials in Physics, Biology and Medicine (MAGMA)
- Medicine and Science in Sports and Exercise

#### Other external service

2023-Present	Associate Editor, NPJ Digital Medicine
2024-2027	Editorial Board Member, Arthritis Care & Research
2022-Present	Member, Finance Committee, OARSI
2022	Moderator, Pre-Congress Workshop, OARSI World Congress
2021	Moderator, Concurrent Session 11: Therapeutic Challenges in OA, OARSI World Congress
2021	Moderator, Poster session, OARSI World Congress
2021	Co-Moderator, Walk this Way: Insights into knee osteoarthritis from gait mechanics, OARSI Live
2020	Moderator, "In vivo load-induced OA in the mouse", OARSI Hour
2018-Present	Mentor, Meet the Mentor Workshop, OARSI World Congress
2019	Co-Moderator, Concurrent Session 7: Biomechanics, OARSI World Congress
2016-Present	Analysis Plan and Manuscript Reviewer, Multicenter Osteoarthritis Study (MOST)
2018	Poster Tour Facilitator, Biomechanics and Gait, OARSI World Congress
2018-2020	Member, World Congress Program Committee, OARSI
2015-2017	Vice-Chair, Biomechanics SIG, Section on Research, American Physical Therapy Association
2016-Present	Abstract Reviewer, Orthopaedic Section, American Physical Therapy Association Combined Sections Meeting

#### **Boston University**

2023-Present	Member, Sargent Artificial Intelligence Taskforce (SAIT), Sargent College of Health and Rehabilitation Sciences, Boston University
2023	Travel Grants Reviewer, Professional Development and Postdoctoral Affairs, Boston University
2022-Present	Member, Committee on Academic Policy and Procedures, Department of Physical Therapy
2021-2022	Chair, Tenure Track Faculty Search Committee, Department of Physical Therapy
2019-2023	Member, Steering Committee, PhD Rehabilitation Sciences, Sargent College
2019-Present	Organizer, Boston National Biomechanics Day Research Symposium
2018-Present	Co-Lead, Grand Rounds Seminar series, Department of Physical Therapy

2018 & 2020	Reviewer, BU CTSI Pilot Grant Review
2018-2019	Acting Director, DPT-PhD Program
2018-2019	Grant Reviewer, Dudley Allen Sargent Research Fund, Sargent College
2018-2019	Co-Lead, Research and Scholarship Pillar, Strategic Planning, Department of Physical Therapy & Athletic Training
2018-2019	Organizer and Host, Upward Bound Math and Science Program, Lab Experience
2017	Member, DPT-PhD Taskforce, Department of Physical Therapy & Athletic Training, Boston University
2017	Organizer and Host, Upward Bound Summer Lab, Boston University
2017-2019	Organizer and Host, National Biomechanics Day, Boston University
2016-	Member, PhD Admission Review, College of Health and Rehabilitation Sciences:
Present	Sargent College, Boston University
2016-Present	Member, DPT Admissions Review, Department of Physical Therapy & Athletic Training, Boston University

## Other Institutions

2015-2016	Founder and Coordinator, College of Health Professions Research Seminar Series, Medical University of South Carolina
2014-2016	Member, Student Policies and Procedures Committee, Division of Physical Therapy, Medical University of South Carolina
2014-2015	Member, Faculty Evaluation Committee, College of Health Professions, Medical University of South Carolina
2016	Member, Center for Biomedical Imaging Website Committee, Medical University of South Carolina
2016	Member, Center for Biomedical Imaging Lecture Series Committee, Medical University of South Carolina
2015-2016	Founder and Coordinator, Center for Biomedical Imaging Musculoskeletal Imaging Study Group, Medical University of South Carolina
2015	Facilitator, Inter-professional Day, Medical University of South Carolina
2014-2016	Member, Student Policies and Procedures Committee, Division of Physical Therapy, Medical University of South Carolina
2014	Judge, Inter-professional Research Award at Research Day, Nov 14, 2014, Medical University of South Carolina
2012	Team leader, Website development, UCSF Center of Research Translation website, University of California, San Francisco.
2012	Speaker, UCSF Center for Translational Research, Workshop on Biomechanical Analysis of Human Movement using Visual3D, University of California, San Francisco
2009	Student member, Organizing Committee, Center of Biomechanical Engineering Research Symposium, University of Delaware. May, 2009

## Awards and Honors

2022	Conference poster selected for extended programming, for " <i>Using Machine Learning to Predict Medial Knee Cartilage Worsening over 2 Years Using Gait and Physical Activity: The MOST Study</i> "
2020	Top performing reviewer for Arthritis Care and Research, Top 5% of all reviewers with respect to number of reviews, the quality of reviews, and their timeliness
2019	Second place, Best Poster Award, APTA Technology SIG, APTA CSM, Washington, DC
2018	Institute Fellow, Institute for Health System Innovation & Policy, Boston University
2018	Outstanding Reviewer for 2017, Osteoarthritis and Cartilage, Osteoarthritis Research Society International
2018	Eugene Michels New Investigator Award, American Physical Therapy Association
2015	Editor's Pick, highlighting high impact manuscripts for " <i>Anatomic correlates of reduced hip extension during walking in individuals with mild-moderate radiographic hip osteoarthritis</i> "

2015	ORS/OREF/AAOS New Investigator Workshop, Rosemont, IL
2014	Journal of Applied Physiology Editorial titled " <i>How important are perturbation responses and joint proprioception to knee osteoarthritis</i> " for manuscript " <i>Individuals with medial knee osteoarthritis show short-term neuromuscular adaptation when perturbed during walking in spite of functional and structural limitations</i> "
2014	Young Investigator Award, AAOS/CORR/ORS/CMH-UCD Musculoskeletal Sex Differences Throughout the Lifespan (SD) Research Symposium, Rosemont, IL
2014	New Investigator Award, Advancing Arthritis Research Workshop, sponsored by Boston U Center for Enhancing Activity and Participation among Persons with Arthritis (ENACT)
2012	Osteoarthritis Research Society International (OARSI) Young Investigator Travel Award
2012	OARSI OA Biomarkers Global Initiative, Top rated abstract from young investigators
2012	UCSF/UCD Translation of Quantitative Imaging in Research Center of Travel Award
2010	Best Podium Presentation, Annual Center for Biomedical Research Engineering Day
2009	University of Delaware Graduate Fellowship - \$15,500
2008	University of Florida Neuromuscular Plasticity Scholar
2005	International Society for Postural and Gait Research Annual Meeting Travel Award
2003	Gold Medal, Master of Physiotherapy (Musculo-skeletal), Jamia Hamdard, India

## Licenses and Certifications

2007 – present	<b>Physical Therapist</b> (#5501013729), Michigan Board of Physical Therapy
2015 – 2017	<b>Physical Therapist</b> (#7728), South Carolina Board of Physical Therapy
2008 – 2019	<b>Orthopedic Clinical Specialist</b> , American Board of Physical Therapy Specialties
2004 – 2019	<b>Physiotherapist</b> (# PH 71213), Health Care and Professions Council, UK

## Other Employment

2006 - 2010	<b>Research Assistant</b> , Department of Physical Therapy, University of Delaware, Newark, DE
2006	<b>Research Assistant</b> , Department of Kinesiology, University of Illinois at Chicago, IL
2005	<b>Physical Therapist</b> , Department of Orthopedics, All India Institute of Medical Sciences, New Delhi, India
2003 - 2005	<b>Visiting Lecturer</b> , Department of Rehabilitation Science, Jamia Hamdard, New Delhi, India
2003 - 2004	<b>Visiting Lecturer</b> , Institute for the Physically Handicapped, Delhi University, New Delhi, India
2003 - 2005	<b>Physical Therapist</b> , Dept. of Physical Therapy, Holy Family Hospital, New Delhi

## Media Coverage

<a href="#">Joint Action Podcast</a>	2024
<a href="#">BJSM Blog (for Kumar et al. 2023)</a>	2023
<a href="#">BJSM Podcast (for Costello et al. 2023)</a>	2023
<a href="#">Coverage in multiple news articles for JAMA Network Paper</a>	2022
<a href="#">Healing Pain Podcast</a>	2022
<a href="#">Healio Rheumatology</a>	2022
<a href="#">Measuring Mobility Improvement</a>	2021
<a href="#">Health Matters Podcast</a>	2020
<a href="#">Mindful Walking</a>	2018
<a href="#">From MRI to Motion Capture</a>	2018
<a href="#">Vigorous Exercise Hastens Knee OA Progression- Rheumatology News</a>	2014
Knee Pain No More – Men’s Health Magazine	2014