CURRICULUM VITAE
BRADEN CAMPBELL FLEMING

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EDUCATION

Undergraduate	University of Vermont, Bioengineering, B.S., 1983
Advanced Degrees	University of Vermont, M.S. Biomedical Engineering, 1991 University of Vermont, Ph.D. Mechanical Engineering, 1996

POSTGRADUATE HONORS AND AWARDS

Cabaud Research Award, Presented by the American Orthopaedic Society of Sports Medicine, July 2023
Orthopaedic Research & Education Foundation Clinical Research Award, Presented by the American Academy of Orthopaedic Surgeons, March 2022
Orthopaedic Research Society Fellow, Class of 2022, February 2022
William A. Grana Award for Best Original Research, Presented by the American Orthopaedic Society of Sports Medicine, July 2020
O'Donoghue Sports Injury Research Award, Presented by the American Orthopaedic Society of Sports Medicine, July 2020
Orthopaedic Research & Education Foundation Clinical Research Award, Presented by the American Academy of Orthopaedic Surgeons, March 2020
Cabaud Research Award, Presented by the American Orthopaedic Society of Sports Medicine, July 2013
Kappa Delta Ann Doner Vaughn Award, Presented by the American Academy of Orthopaedic Surgeons, March 2013
BREG/ACL Study Group Traveling Fellowship, Presented by the ACL Study Group, 2010 to 2012
Cabaud Research Award, Presented by the American Orthopaedic Society of Sports Medicine, July 2009
Mimics Innovation Research Award, Presented by Materialise, May 2008

Hughston Award, Presented by the American Orthopaedic Society of Sports Medicine, July 2006
Bruce Selya Research Award, Presented by Lifespan/Brown Medical School, September 2005
O'Donoghue Sports Injury Research Award, Presented by the American Orthopaedic Society of Sports Medicine, February 2005
GOTS-Beiersdorf Research Award, Presented by the Gesellschaft Fur Orthopadisch Traumatologische Sportmedizin, June 2000
Postdoctoral Young Scientist Award, Presented by the American Society of Biomechanics, October 1999
Albert Trillat Young Investigator Award, Presented by the International Society of Arthroscopy, Knee Surgery, and Orthopaedic Sports Medicine, May 1997
O'Donoghue Sports Medicine Award, Presented by the American Society of Orthopaedic Sports Medicine, June 1996
Excellence in Research Award, Presented by the Department of Orthopaedics, University of Vermont, June 1995
Kappa Delta Elizabeth Winston Lanier Award, Presented by the American Academy of Orthopaedic Surgeons, February 1994
Excellence in Research Award, Presented by the Department of Orthopaedics, University of Vermont, June 1994
Bio-engineering Student Paper Competition, Presented by NASA, March 1994
Albert Trillat Young Investigator Award, Presented by the International Knee Society, June 1993
Predoctoral Young Scientist Award, Presented by the American Society of Biomechanics, August 1992

ACADEMIC APPOINTMENTS

Lucy Lippitt Professor of Orthopaedics: Warren Alpert Medical School of Brown University, 07/10 – present
Adjunct Professor: Division of Engineering, Brown University; 07/08 – present
Professor of Orthopaedics: Warren Alpert Medical School of Brown University, 07/08 – 06/10
Associate Professor of Orthopaedics: Warren Alpert Medical School of Brown University, 11/03 – 06/08
Adjunct Associate Professor: Division of Engineering, Brown University; 06/05 – 06/08
Assistant Professor of Orthopaedics: Brown Medical School; 06/03 – 10/03
Assistant Professor: Graduate College, University of Vermont; 01/98 – 05/03
Research Assistant Professor: University of Vermont College of Medicine; 11/96 – 05/03

HOSPITAL APPOINTMENTS

Co-Director of the Bioengineering Core of the COBRE for Skeletal Health and Repair, Rhode Island Hospital; 09/07 – present
Senior Investigator: Rhode Island Hospital, 06/03 – present

OTHER APPOINTMENTS

Associate Editor; American Journal of Sports Medicine; 07/13 –Present
ORS Publications Committee; 02/24 – 02/26
National Institutes of Health Study Section; Arthritis and Musculoskeletal and Skin Diseases Clinical Trials Study Section (2024/05 AMSC 1); 02/24
National Institutes of Health Study Section; Arthritis and Musculoskeletal and Skin Diseases Clinical Trials Study Section (2024/01 AMSC 1); 10/23
Orthopaedic Research and Education Foundation; OREF Clinical Research Award Peer Review Committee; 2020-2023.
Department of Defense FY23 Peer Review Medical Research Program Review Committee (PRMRP CT- MSH1), 09/23.
National Institutes of Health Study Section; Arthritis and Musculoskeletal and Skin Diseases Member Conflict Special Emphasis Panel; 10/2022
Orthopaedic Research and Education Foundation Study Section; OREF Injectable Orthobiologics of Knee Osteoarthritis Grants; 04/2022
National Institutes of Health Study Section; Arthritis and Musculoskeletal and Skin Diseases Mechanistic Ancillary Studies Study Section; 02/2022
National Institutes of Health Study Section; Arthritis and Musculoskeletal and Skin Diseases Special Grants Study Section; 10/2021
National Institutes of Health Study Section; Musculoskeletal Tissue Engineering; 10/2020
National Institutes of Health Study Section; Member Conflict: Bioengineering Sciences & Technologies; 06/2020
National Institutes of Health Study Section; NIAMS Ancillary Studies; 02/2020
Canadian Foundation for Innovation; Grant reviewer; 01/2020
National Institutes of Health Study Section; NIAMS Ancillary Studies; 10/2019
Orthopaedic Research and Education Foundation Study Section; The Treatment of Knee Osteoarthritis Research Grants; 07/2019
National Institutes of Health Study Section (member); Musculoskeletal Rehabilitation Sciences; 07/01/2015 – 06/30/2019
National Institutes of Health Study Section; NIAMS Ancillary Studies; 03/2019
National Institutes of Health Study Section; Loan Repayment Program; 04/2017
Department of Defense; Peer Reviewed Medical Research Program Study Section; 12/2017
Co-chair of the Tendon/Ligament Topic Committee, Orthopaedic Research Society, 04/2015-03/2017
Orthopaedic Research and Education Foundation; Reviewer Panel; Prospective Clinical Research Grants, 11/2016
Orthopaedic Research and Education Foundation; Reviewer Panel; Soft Tissue Repair and Regeneration in Sports Medicine Grants, 08/2016
American Orthopaedic Society for Sports Medicine; Program Committee, 08/2013-07/2016
National Institutes of Health Study Section; Special Emphasis Panel; ZRG1 MOSS-D82, 10/2016
National Institutes of Health Study Section; Special Emphasis Panel; 2016/10 ZAR1 YL (M1) 1, 06/2016
National Institutes of Health Study Section; Loan Repayment Program; 04/2016
Program Committee, International Symposium of Ligament & Tendon, 2015
Arthritis Foundation (Delivery on Discovery RFP 2015) Study Section, 09/2015

National Institutes of Health Study Section; Musculoskeletal Rehabilitation Sciences; 02/2015
Department of Defense; Peer Reviewed Medical Research Program Study Section; 09/2014.
National Institutes of Health Study Section; Special Emphasis Panel: ZRG1 MOSS-U82; 07/2014
National Institutes of Health Study Section; Special Emphasis Panel; NIH Director's Early Independence Awards; 06/2014
National Institutes of Health Study Section; Special Emphasis Panel; COBRE; 06/2013
National Institutes of Health Study Section; Special Emphasis Panel; Skeletal Biology, Dental, Arthritis and Tissue Engineering; 03/2013
National Institutes of Health Study Section; Special Emphasis Panel; Institutional Development Award (IDeA) Program Infrastructure for Clinical and Translational Research; 02/2013
National Institutes of Health Study Section; Special Emphasis Panel; Oral Biology and Craniofacial Development; 07/2012
The Arthritis Society (Canada); Investigator Award Review Panel; 03/2012
National Institutes of Health Study Section; Special Emphasis Panel; Clinical Trials Grant Review; 11/2011
International Symposium of Ligament & Tendon; Program Committee; 2011
National Institutes of Health Study Section; Skeletal Biology Structure and Regeneration Study Section; 06/2010
Orthopaedic Research Society; Nomination Committee - Bioengineer, 2009
National Institutes of Health Study Section (member); Skeletal Biology Structure and Regeneration Study Section; 02/2004 – 06/2008
International Symposium of Ligament & Tendon, Co-Chair of the Program Committee, 09/07 – 04/08
National Institutes of Health Study Section; Special Emphasis Panel; Medical Bone/Cartilage Imaging; 06/2005
National Institutes of Health Study Section; R03 Small Grants for New Investigators Study Section; 03/2004, 08/2004
National Institutes of Health Study Section; Arthritis, Musculoskeletal, Skin Diseases (1) Study Section; 02/2004
National Institutes of Health Study Section; Special Study Section: SSS5-10; 11/2002
National Institutes of Health Study Section; Special Study Section: RFA AR-00-006; 11/2001
National Institutes of Health Study Section; Special Study Section: RFA PA-00-069; 08/2001
National Institutes of Health Study Section; Special Study Section: RFA HD-98-006; 12/1998
American Orthopaedic Society of Sports Medicine Research Committee; 12/1998-12/2002
Vermont Experimental Program to Stimulate Competitive Research: Review Board; 05/1999 – 05/2002
Journal of Applied Biomechanics: Editorial Board; 09/02 – 07/13
American Journal of Sports Medicine: Editorial Board; 04/04 – 07/13
Program Committee, Orthopaedic Research Society, 2004, 2008
Program Committee, International Symposium of Ligament & Tendon, 2007

Co-Chair Program Committee, International Symposium of Ligament & Tendon, 2008
Journal of Bone & Joint Surgery: Review board, 1994 – present
Clinical Orthopaedics & Related Research: Review board, 1996 – present
American Journal of Sports Medicine: Review board, 1996 – 2004
Journal of Orthopaedic Research: Review board, 1995 – present
Journal of Biomechanics: Review board, 1997 – present
Exercise & Sport Science Review: Review board, 2002 – present
Annals of Biomedical Engineering: Review board, 2003 – present
Knee Surgery, Sports Traumatology & Arthroscopy: Review board, 2004 – present
Osteoarthritis & Cartilage: Review board, 2008 – present
Scandinavian Journal of Medicine & Science in Sports: Review board, 2009 – present
Arthritis & Rheumatism: Review board, 2009 – present
Arthritis Research & Therapy: Review board, 2011 – present
Journal of Biomedical Materials Research: Part A: Review board, 2011 – present
Orthopaedic Journal of Sports Medicine, 2018 – present
Sports Health: Review board, 2013 – present

HOSPITAL COMMITTEES

Institutional Review Board, Rhode Island Hospital, 11/05 – 11/08
Selya Research Award Committee, Rhode Island Hospital, 08/06 – 08/08
Lifespan Seed Funding Grant Program Review Committee, Rhode Island Hospital, 2012

UNIVERSITY COMMITTEES

Brown University Conflict of Interest Review Board, Brown University, 3/19 – present
Service Core Steering Committee member, Cardiopulmonary Vascular Biology (CPVB) Center of Biomedical Research Excellence, Brown University 09/23- present
MRI Research Facility Executive Committee, Brown University, 09/12 – present
Committee on Medical Faculty Appointments, Brown University, 09/12 – 06/15
Frank and Levy Awards Committee, Brown University, 2011 – 2012
Faculty Animal Users Committee, Brown University, 02/07 – 01/11
Institutional Review Board, University of Vermont, 06/00 – 05/03
Department of Orthopaedics and Rehabilitation Research Committee, University of Vermont, 1995 – 2003
Post-doctoral Advisory Committee, Department of Orthopaedics & Rehabilitation, University of Vermont; 06/02 – 05/03

MEMBERSHIP IN SOCIETIES

Orthopaedic Research Society; 1987 – present
American Society of Mechanical Engineers: 1988 – present
American Society of Biomechanics; 1992 – present
International Society of Arthroscopy, Knee Surgery, and Orthopaedic Sports Medicine; 2000 – present
American Orthopaedic Society for Sports Medicine: 2004 – present
Osteoarthritis Research Society International: 2008 – present
ACL Study Group: 2010 – present

ORIGINAL PUBLICATIONS IN PEER-REVIEWED JOURNALS

1. Kristiansen T, Fleming B, Neale G, Reinecke S, Pope MH. A comparative study of facture gap motion in external fixation. *Clin Biomech. 1987 Nov;2(4):191-5.* PMID: 23915753.
2. Stein A, Fleming B, Pope MH, Howe JG. Total knee arthroplasty kinematics. An in vivo evaluation of four different designs. *J Arthroplasty. 1988;3 Suppl:S31-6.* PMID: 3199138.
3. Emery M, Rodgers MM, Boerman J, Fleming BC, Howe J, Pope M. Reliability of force/displacement measures in a clinical device designed to measure ligamentous laxity at the knee. *J Orthop Sports Phys Ther. 1989;10(11):441-7.* PMID: 18796944.
4. Fleming B, Paley D, Kristiansen T, Pope M. A biomechanical analysis of the Ilizarov external fixator. Clin Orthop Relat Res. 1989 Apr;(241):95-105. PMID: 2924484.
5. Paley D, Fleming B, Catagni M, Kristiansen T, Pope M. Mechanical evaluation of external fixators used in limb lengthening. Clin Orthop Relat Res. 1990 Jan;(250):50-7. PMID: 2293944.
6. Hazard RG, Reeves V, Weisman G, Fleming BC, Pope MH. Dynamic lifting capacity: The relationship between peak force and weight as an indicator of effort. J Spinal Disord. 1991 Mar;4(1):63-7. PMID: 1839668.
7. Pope MH, Stankewich CJ, Beynnon BD, Fleming BC. The effect of knee musculature on ACL strain in vivo. *J Electromyogr Kinesiol. 1991 Sep;1(3):191-8.* PMID: 20870509.
8. Howe JG, Johnson RJ, Kaplan MJ, Fleming B, Jarvinen M. Anterior cruciate ligament reconstruction using quadriceps patellar tendon graft. Part I. Long-term follow-up. Am J Sports Med. 1991 Sep-Oct;19(5):447-57. PMID: 1962708.
9. Kaplan MJ, Howe JG, Fleming B, Johnson RJ, Jarvinen M. Anterior cruciate ligament reconstruction using patellar tendon graft. Part II. A specific sports review. Am J Sports Med. 1991 Sep-Oct;19(5):447-57. PMID: 1962709.
10. Fleming B, Beynnon B, Howe J, McLeod W, Pope M. Effect of tension and placement of a prosthetic anterior cruciate ligament on the anteroposterior laxity of the knee. *J Orthop Res. 1992 Mar;10(2):177-86.* PMID: 1740735.
11. Beynnon BD, Howe JG, Pope MH, Johnson RJ, Fleming BC. Anterior cruciate ligament strain in vivo. The Sicot Muller Award Paper. Int Orthop. 1992;16(1):1-12. PMID: 1429785.
12. Halsey D, Fleming B, Kristiansen T, Pope MH, Krag M. External fixator pin design. Clin Orthop Relat Res. 1992 May;(278):305-12. PMID: 1563166.
13. Kaigle AM, Pope MH, Fleming BC, Hansson T. A method for the intravital measurement of interspinous kinematics. *J Biomech. 1992 Apr;25(4):451-6.* PMID: 1583023.
14. Fleming BC, Johnson RJ, Shapiro E, Nichols C, Howe JG, Pope MH. Clinical versus instrumented knee testing on autopsy specimens. Clin Orthop Relat Res. 1992 Sep;(282):196-207. PMID: 1516313.
15. Beynnon BD, Pope MH, Wertheimer CM, Johnson RJ, Fleming BC, Howe JG, Nichols CE. The effect of functional knee braces on anterior cruciate ligament strain in vivo. J Biomech. 1993 Jan;26(1):51-8. PMID: 1429785.

16. Fleming BC, Beynnon BD, Nichols CE, Johnson RJ, Pope MH. An in vivo comparison of anterior tibial translation and strain in the anteromedial band of the anterior cruciate ligament. J Biomech. 1993 Jan;26(1):51-8. PMID: 8423168.
17. Fleming B, Beynnon BD, Johnson RJ, McLeod WD, Pope MH. Isometric versus tension measurements: A comparison for the reconstruction of the anterior cruciate ligament. Am J Sports Med. 1993 Jan-Feb;21(1):82-8. PMID: 8427374.
18. Hazard R, Reeves V, Fenwick J, Fleming B, Pope M. Test-retest variation in lifting capacity and indices of subject effort. Clin Biomech. 1993 Jan;8(1):20-4. PMID: 23915825.
19. Fleming BC, Beynnon BD, Nichols CE, Renstrom P, Johnson RJ, Pope MH. An in vivo comparison between intraoperative isometric measurement and local elongation of the graft after reconstruction of the anterior cruciate ligament. J Bone Joint Surg Am. 1994 Apr;76(4):511-9. PMID: 8150818.
20. Beynnon BD, Johnson RJ, Fleming BC, Renstrom P, Nichols CE, Pope MH:. The measurement of elongation of anterior cruciate ligament grafts in vivo. J Bone Joint Surg Am. 1994 Apr;76(4):520-31. PMID: 8150819.
21. Fleming BC, Beynnon BD, Tohyama H, Johnson RJ, Nichols CE, Renstrom P, Pope MH. The determination of a zero strain reference for the anteromedial band of the anterior cruciate ligament. J Orthop Res. 1994 Nov;12(6):789-95. PMID: 7983554.
22. Beynnon BD, Fleming BC, Johnson RJ, Nichols CE, Renstrom PA, Pope MH. Anterior cruciate ligament strain behavior during rehabilitation exercises in vivo. **Winner of the 1993 Albert Trillat Young Investigator Award**. Am J Sports Med. 1995 Jan-Feb;23(1):24-34. PMID: 7726347.
23. Tohyama H, Beynnon BD, Renstrom PA, Theis MJ, Fleming BC, Pope MH. Biomechanical analysis of the ankle anterior drawer test for anterior talofibular ligament injuries. J Orthop Res. 1995 Jul;13(4):609-14. PMID: 7674077.
24. Beynnon B, Yu J, Huston D, Fleming B, Johnson R, Haugh L, Pope MH: A sagittal plane model of the knee and cruciate ligaments with application of a sensitivity analysis. J Biomech Eng. 1996 May;118(2):227-39. PMID: 8738789.
25. Beynnon BD, Risberg MA, Tjomsland O, Ekeland A, Fleming BC, Peura GD, Johnson RJ. Evaluation of knee joint laxity and the structural properties of the anterior cruciate ligament graft in the human. A case report. Am J Sports Med. 1997 Mar-Apr;25(2):203-6. PMID: 9079174.
26. Beynnon BD, Johnson RJ, Fleming BC, Peura GD, Renstrom PA, Nichols CE, Pope MH. The effect of functional knee bracing on the anterior cruciate ligament in the weight bearing and non-weight bearing knee. Am J Sports Med. 1997 May-Jun;25(3):353-9. PMID: 9167816.
27. Beynnon BD, Johnson RJ, Fleming BC, Stankewich CJ, Renstrom PA, Nichols CE. The strain behavior of the anterior cruciate ligament during squatting and active flexion-extension. A comparison of an open and a closed kinetic chain exercise. **Winner of the 1996 AOSSM O'Donoghue Sports Injury Research Award**. Am J Sports Med. 1997 Nov-Dec;25(6):823-9. PMID: 9397272.
28. Fleming BC, Beynnon BD, Renstrom PA, Peura GD, Nichols CE, Johnson RJ. The strain behavior of the anterior cruciate ligament during bicycling. An in vivo study. **Winner of the 1997 Albert Trillat Young Investigator Award.** Am J Sports Med. 1998 Jan-Feb;26(1):109-18. PMID: 9474411.

29. Beynnon BC, Meriam CM, Ryder SH, Fleming BC, Johnson RJ. The effect of screw insertion torque on tendons fixed with spiked washers. Am J Sports Med. Jul-Aug 1998;26(4):536-9. PMID: 9689374.
30. Fleming BC, Huston DR, Krag MH, Sugihara S. Pin force measurement in a halo-vest orthosis, in vivo. J Biomech. 1998 Jul;31(7):647-51. PMID: 9796687.
31. Fleming BC, Beynnon BD, Renström PA, Johnson RJ, Nichol CE, Peura GD, Uh BS. The strain behavior of the anterior cruciate ligament during stair climbing: An in vivo study. Arthroscopy. 1999 Mar;15(2):185-91. PMID: 10210077.
32. Fleming BC, Good L, Peura GD, Beynnon BD. Calibration and application of an intra-articular force transducer for the measurement of patellar tendon graft forces: An in situ evaluation. J Biomech Eng. 1999 Aug;121(4):393-8. PMID: 10464693.
33. Fleming BC, Peura GD, Beynnon BD. Factors influencing the output of an implantable force transducer. J Biomech. 2000 Jul;33(7):889-93. PMID: 10831764.
34. Reed BV, Ashikaga T, Fleming BC, Zimny NJ. Effects of ultrasound and stretch on knee ligament extensibility. J Orthop Sports Phys Ther. 2000 Jun;30(6):341-7. PMID: 10871146.
35. Fleming BC, Krag MH, Huston DR, Sugihara S. Pin loosening in a halo-vest orthosis: a biomechanical study. Spine. 2000 Jun 1;25(11):1325-31. PMID: 10828912.
36. Fleming BC, Renstrom PA, Beynnon BD, Engstrom B, Peura GD. The influence of functional knee bracing on the anterior cruciate ligament strain biomechanics in weight bearing and non-weight bearing knees. Am J Sports Med. 2000 Nov-Dec;28(6):815-24. PMID: 11101104.
37. Fleming BC, Renstrom P, Beynnon BD, Engstrom B, Peura GD, Badger GJ: The effect of weight bearing and external loading on anterior cruciate ligament strain. **Winner of the 1999 ASB Post-Doctoral Award.** J Biomech. 2001 Feb;34(2):163-70. PMID: 11165279.
38. Beynnon BD, Uh BS, Johnson RJ, Fleming BC, Renstrom PA, Nichols CE. The elongation behavior of the anterior cruciate ligament graft in vivo. A long-term follow-up study. Am J Sports Med. 2001 Mar-Apr;29(2):161-6. PMID: 11292040.
39. Fleming BC, Abate JA, Peura GD, Beynnon BD. The relationship between graft tensioning and the anterior-posterior laxity in the anterior cruciate ligament reconstructed goat knee. J Orthop Res. 2001 Sep;19(5):841-4. PMID: 11562130.
40. Fleming BC, Peura GD, Abate JA, Beynnon BD. Accuracy and repeatability of Roentgen stereophotogrammetric analysis (RSA) for measuring knee laxity in ongitudinal studies. J Biomech. 2001 Oct;34(10):1355-9. PMID: 11522316.
41. Fleming BC, Renstrom PA, Ohlen G, Johnson RJ, Peura GD, Beynnon BD, Badger GJ. The gastrocnemius muscle is an antagonist of the anterior cruciate ligament. J Orthop Res. 2001 Nov;19(6):1178-84. PMID: 11781021.
42. Uh BS, Beynnon BD, Churchill DL, Haugh LD, Risberg MA, Fleming BC. A new device to measure knee laxity during weight bearing and non-weight bearing conditions. J Orthop Res. 2001 Nov;19(6):1185-91. PMID: 11781022.
43. Beynnon BD, Fleming BC, Labravich R, Parsons B. Chronic anterior cruciate ligament deficiency is associated with increased anterior translation of the tibia

during the transition from non-weight bearing to weight bearing. J Orthop Res. 2002 Mar;20(2):332-7. PMID: 11918313.

44. Fleming BC, Brattbakk B, Peura GD, Badger GJ, Beynnon BD. Measurement of anterior-posterior knee laxity: a comparison of three techniques. J Orthop Res. 2002 May;20(3):421-6. PMID: 12038613.
45. Beynnon BD, Johnson RJ, Fleming BC, Kannus P, Kaplan M, Samani J, Renstrom P. Anterior cruciate ligament replacement: comparison of bone-patellar tendon-bone grafts with two-strand hamstring grafts. A prospective, randomized study. J Bone Joint Surg Am. 2002 Sep;84(9):1503-13. PMID: 12208905.
46. Beynnon BD, Fleming BC, Churchill DL, Brown DS. The effect of anterior cruciate ligament deficiency and functional bracing on translation of the tibia relative to the femur during non-weight bearing and weight bearing. Am J Sports Med. 2003 Jan-Feb;31(1):99-105. PMID: 12531765.
47. Fleming BC, Ohlen G, Renstrom PA, Peura GD, Beynnon BD, Badger GJ. The effects of compressive load and knee joint torque on peak anterior cruciate ligament strains. Am J Sports Med. 2003 Sep-Oct;31(5):701-7. PMID: 12975189.
48. Heijne A, Fleming BC, Renstrom P, Peura GD, Werner S, Beynnon BD. Strain on the anterior cruciate ligament during closed kinetic chain exercises. Med Sci Sports Exerc. 2004 Jun;36(6):935-41. PMID: 15179161.
49. Beynnon BD, Uh BS, Fleming BC, Renstrom P, Roos H, Poole RA, Johnson RJ Rehabilitation after anterior cruciate ligament reconstruction: A prospective, randomized, double-blind comparison of programs administered over 2 different time intervals. **Winner of the 2005 O'Donoghue Sports Injury Award. Winner of the 2006 Hughston Award.** Am J Sports Med. 2005 Mar;33(3):347-59. PMID: 15716250.
50. Walsh EF, DaSilva M, Fleming BC, Akelman E. Thumb carpometacarpal arthroscopy: A topographic, anatomic study of the thenar portal. J Hand Surg Am. 2005 Mar;30(2):373-9. PMID: 15781362.
51. Coughlin KM, Peura GD, Fleming BC, Hallock S, Beynnon BD. In vivo loads in the medial compartment of the rabbit knee. Clin Biomech. 2005 Nov;20(9):1007-9. PMID: 16099082.
52. Roemhildt ML, Peura GD, Coughlin KM, Fleming BC, Beynnon BD. Material properties of articular cartilage in the rabbit tibial plateau. J Biomech. 2006;39(12):2331-7. PMID: 16168420; PMCID: PMC2933407.
53. Langer P, Fadale P, Hulstyn M, Fleming B, Brady M. Survey of Orthopaedic and sports medicine physicians regarding use of medrol dosepak for sports injuries. Arthroscopy. 2006 Dec;22(12):1263-1269.PMID: 17157723.
54. Langer P, Nickisch F, Spenciner D, Fleming B, DiGiovanni CW. In vitro evaluation of the effect lateral process talar excision on ankle and subtalar joint stability. Foot Ankle Int. 2007 Jan;28(1):78-83. PMID: 17257543.
55. Brady MF, Bradley MP, Banerjee R, Fadale PD, Hulstyn MJ, Fleming BC. Effects of initial graft tension on the tibiofemoral compressive forces and joint position after anterior cruciate ligament reconstruction. Am J Sports Med. 2007 Mar;35(3):395-403. PMID: 17218659; PMCID: PMC1859866.
56. Teeple E, Fleming BC, Mechrefe AP, Crisco JJ, Brady MF, Jay GD. Frictional properties of Hartley guinea pig knees with and without Proteolytic disruption of the articular surfaces. Osteoarthritis Cartilage. 2007 Mar;15(3):309-15. PMID: 17010648; PMCID: PMC1994930.

57. Oksendahl HL, Fleming BC, Blanpied PR, Ritter M, Hulstyn MJ, Fadale PD. Intra-articular anesthesia and knee muscle response. Clin Biomech. 2007 Jun;22(5):529-36. PMID: 17350738; PMCID: PMC1865115.
58. Crisco JJ, Blume J, Teeple E, Fleming BC, Jay GD. Assuming exponential decay by incorporating viscous damping improves the prediction of the coefficient of friction in pendulum tests of whole articular joints. Proc Inst Mech Eng H. 2007 Apr;221(3):325-33. PMID: 17539587.
59. Brody JM, Hulstyn MJ, Fleming BC, Tung GA. The meniscal roots: Gross anatomic correlation with 3-T MRI findings. AJR Am J Roentgenol. 2007 May;188(5):W446-50. PMID: 17449741.
60. Drewniak EI, Crisco JJ, Spenciner DB, Fleming BC. Accuracy of circular contact area measurements with thin-film pressure sensors. J Biomech. 2007;40(11):2569-72. PMID: 17270193.
61. Bowers ME, Tung GA, Fleming BC, Crisco JJ, Rey J. Quantification of meniscal volume by segmentation of 3T magnetic resonance images. J Orthop Res. 2008 Feb;26(2):231-7. PMID: 17868097; PMCID: PMC2084402.
62. Tashjian RZ, Levanthal E, Spenciner DB, Green A, Fleming BC. Initial fixation strength of massive rotator cuff tears: In vitro comparison of single-row suture anchor and transosseous tunnel constructs. Arthroscopy. 2007 Jul;23(7):710-6. PMID: 17637405.
63. Le NA, Fleming BC. Measuring fixed charge density and mechanical properties of goat articular cartilage using indentation methods and biochemical analysis. J Biomech. 2008;41(3):715-20. PMID: 17991472; PMCID: PMC2288547.
64. Teeple E, Fleming BC, Elsaid KA, Jay GD, Aslani K, Crisco JJ, Mechrefe AP. Coefficients of friction, lubricin, and cartilage damage in the anterior cruciate ligament-deficient guinea pig knee. J Orthop Res. 2008 Feb;26(2):231-7. PMID: 17868097; PMCID: PMC2792715.
65. Bowers ME, Tung GA, Trihn N, Kimia BB, Leventhal EL, Crisco JJ, Fleming BC. Effects of ACL interference screws on articular cartilage volume and thickness measurements with 1.5 T and 3 T MRI. Osteoarthritis Cartilage. 2008 May;16(5):572-8. PMID: 17933559; PMCID: PMC2424214.
66. Elsaid KA, Fleming BC, Oksendahl HL, Fadale PD, Hulstyn MJ, Shalvoy RM, Jay GD. Decreased lubricin concentrations and markers of joint inflammation in synovial fluids from patients with anterior cruciate ligament injury. Arthritis Rheum. 2008 Jun;58(6):1707-15. PMID: 18512776; PMCID: PMC2789974.
67. Tocci SL, Tashjian RZ, Leventhal E, Spenciner DB, Green A, Fleming BC. Biomechanical evaluation of single row arthroscopic rotator cuff repair (ARCR) technique. J Shoulder Elbow Surg. Sep-Oct 2008;17(5):808-14. PMID: 18595743.
68. Bowers ME, Trinh N, Tung GA, Crisco JJ, Kimia BB, Fleming BC: Quantitative MR imaging using “LiveWire” to measure tibiofemoral articular cartilage thickness. Osteoarthritis Cartilage. 2008 Oct;16(10):1167-73. PMID: 18407529; PMCID: PMC2570785.
69. Fleming BC, Carey JL, Spindler KP, Murray MM. Can suture repair of ACL transection restore normal anteroposterior laxity of the knee? An ex vivo study. J Orthop Res. 2008 Nov;26(11):1500-5. PMID: 18528857; PMCID: PMC2790602.
70. Fleming BC, Brady MF, Bradley MP, Banerjee R, Hulstyn MJ, Fadale PD. Tibiofemoral compression force differences using laxity- and force-based initial

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246. Proffen BL, Sieker JT, Murray MM, Chin KE, Patel TK, Robbins E, Akelman MR, Machan JT, Fleming BC: Injection of extracellular matrix gel following anterior cruciate ligament injury mitigates osteoarthritic changes in a rat model. Osteoarthritis Research Society International, Seattle, 30 April – 3 May 2015.
247. Sieker J, Ayturk U, Proffen B, Fleming B, Murray M: The molecular effects of early intra-articular triamcinolone administration after anterior cruciate ligament injury. 32nd AGA Congress, Dresden, 17-19 Sept 2015.
248. Akelman MR, Fadale PD, Hulstyn MJ, Shalvoy RM, Garcia A, Chin KE, Badger GD, Duryea J, Tung GA, Fleming BC: The effect of initial graft tension after anterior cruciate ligament (ACL) reconstruction: A randomized clinical trial (NCT00434837) with 84-Month follow-up. Orthopaedic Research Society, Orlando, 5-8 March 2016.
249. Chin KE, Akelman MR, Karamchedu P, Waller KA, Kiapour A, Proffen BL, Sieker JT, Murray MM, Fleming BC: Evaluation of gait as a tool to assess longitudinal healing of ACL-reconstruction in a porcine model. Orthopaedic Research Society, Orlando, 5-8 March 2016.
250. Waller KA, Teeple E, McAllister SC, Schmidt TA, Jay GD, Fleming BC: Intra-articular rhPRG4 mitigates cartilage damage following DMM in a porcine model. Orthopaedic Research Society, Orlando, 5-8 March 2016.
251. Larson K, Elsaid K, Schmidt T, Fleming BC, Jay G: Restoration of PRG4 mRNA and chondroprotection by rhPRG4 in IL-1α stimulated cartilage explants. Orthopaedic Research Society, Orlando, 5-8 March 2016.
252. Rohan AC, Rubin LE, Biercevicz AM, Badger GJ, Fleming BC: Assessing Ligament Degeneration Using an Alternative Histological Method. Orthopaedic Research Society, Orlando, 5-8 March 2016.
253. Fleming BC, Akelman MR, Fadale PD, Hulstyn MJ, Garcia A, Chin KE, Shalvoy RM, Tung GA: The effect of initial graft tension after anterior cruciate ligament (ACL) reconstruction: A randomized clinical trial with 7-year follow-up. ACL Study Group. Are Sweden 13-17 March 2016.
254. Murray MM, Flutie B, Fleming BC, Micheli L: Bridge-enhanced ACL repair: Early results of the first in human study. ACL Study Group. Are Sweden 13-17 March 2016.
255. Waller K, Zhang L, Teeple E, McAllister S, Schmidt T, Fleming BC, Jay G: Recombinant lubricin reduces joint damage and inflammation following traumatic injury. Osteoarthritis Research Society International, Amsterdam, 30 March – 3 April 2016.
256. Sieker JT, Proffen BL, Kiapour AM, Waller K, Chin K, Karamchedu NP, Murray MM, Fleming BC: Loss of articular cartilage glycosaminoglycans is associated with enrichment of cartilage and bone developmental processes in the synovium in post-traumatic osteoarthritis. AAOS/ORS Tackling Joint Disease by

understanding Crosstalk between Cartilage and Bone Research Symposium, Rosemont, 28-30 April 2016.

257. Jones MH, Reinke EK, Duryea J, Fleming BC, Obuchowski NA, Winalski CS, Spindler KP: Predictors of lateral compartment joint space difference at a minimum of two years after ACL reconstruction: Data from the Moon onsite cohort. American Orthopaedic Society of Sports Medicine, Colorado Springs, 7-10 July 2016.
258. Clouthier AL, Fleming BC, Miranda DL, Deluzio KJ, Rainbow MJ: Effects of bone morphometry on in vivo knee kinematics and contact mechanics. Canadian Society for Biomechanics, Hamilton, Ontario, 19-22 July 2016.
259. Ashall MF, Clouthier A, Fleming BC, Davis IS, Rainbow MJ: Gait retraining alters elongation of the medial patellofemoral ligament: A pilot study. Canadian Society for Biomechanics, Hamilton, Ontario, 19-22 July 2016.
260. Beveridge JE, Walsh EG, Murray MM, Fleming BC: Sensitivity of ACL volume and MR T2* characteristics to MR scan parameters. Gordon Conference on Musculoskeletal Biology & Bioengineering. Andover, 7-12 August 2016.
261. Kiapour AM, Sieker JT, Proffen BL, Fleming BC, Murray MM: Treatment related changes in synovial fluid proteome in posttraumatic osteoarthritis following ACL injury reveals new potential biomarkers and treatment targets: A proteomic analysis of porcine knee. Orthopaedic Research Society, San Diego 19-22 March 2017.
262. Beveridge JE, Walsh EG, Murray MM, Fleming BC: Sensitivity of ACL volume and MR T2* characteristics to MR scan parameters. Orthopaedic Research Society, San Diego 19-22 March 2017.
263. Proffen BL, Sieker JT, Ayturk UM, Fleming BC, Murray MM: Early proteolytic response of the anterior cruciate ligament after injury. Orthopaedic Research Society, San Diego 19-22 March 2017.
264. Sieker JT, Proffen BL, Kiapour AM, Waller K, Chin K, Karamchedu NP, Konrad J, Murray MM, Fleming BC: RNA-Seq of site-matched synovium and articular cartilage to define the response to anterior cruciate ligament injury and identify gene expression related to glycosaminoglycan loss in post-traumatic osteoarthritis. Orthopaedic Research Society, San Diego 19-22 March 2017.
265. Ware JK, Owens BD, Fadale PD, Hulstyn MJ, Akelman MR, Fleming BC: Predictors of a symptomatic knee following ACL reconstruction: 84-month follow up. American Orthopaedic Society for Sports Medicine, Toronto 20-23 July 2017.
266. Micheli LJ, Flutie B, Fleming BC, Murray MM: Bridge-enhanced ACL Repair: Mid-term Results of the First-in-human Study. American Orthopaedic Society for Sports Medicine, Toronto 20-23 July 2017.
267. Beveridge J, Machan J, Walsh E, Kiapour A, Karamchedu NP, Chin K, Proffen B, Sieker J, Murray M, Fleming BC: The combination of tissue collagen quantity and quality estimated from MR T_2* relaxometry predicts time-specific structural properties of healing ACL following ACL repair. American Society of Biomechanics, Boulder 8-11 August 2017.
268. Fleming BC, Beveridge JE, Kiapour AM, Murray MM: Non-invasive assessment of healing following ACL surgery. ACL Study Group, Queenstown NZ 28 Jan – 1 Feb 2018.
269. Fleming BC, Ware JK, Akelman MR, Fadale PD, Hulstyn MJ, Shalvoy RM, Badger GJ, Owens BD: Preoperative patient reported outcomes predict the

development of symptomatic knee osteoarthritis following ACL reconstruction surgery at 7-year follow-up. Orthopaedic Research Society, New Orleans 10-13 March, 2018. *ORS Tendon Section Member Poster Award Finalist.*

270. Beveridge JE, Proffen BL, Karamchedu NP, Chin KE, Sieker JT, Murray MM, Fleming BC: Cartilage damage is related to ACL stiffness in a porcine model of ACL repair. Orthopaedic Research Society, New Orleans 10-13 March, 2018.
271. Flannery SW, Fleming EN, Karamchedu NP, Behnke AL, Beveridge JE, Proffen BL, Sieker JT, Murray MM, Fleming BC: Assessing meniscus integrity post-ACL repair with MRI T_2* relaxometry. Orthopaedic Research Society, New Orleans 10-13 March, 2018.
272. Beveridge JE, Machan JT, Walsh E, Kiapour AM, Karamchedu NP, Chin KE, Proffen BL, Sieker JT, Costa M, Murray MM, Fleming BC: Structural properties of healing ACL predicted from MR T_2*, signal intensity, and ligament volume. Orthopaedic Research Society, New Orleans 10-13 March, 2018.
273. Fleming BC, Ware JK, Akelman MR, Fadale PD, Hulstyn MJ, Shalvoy RM, Badger GJ, Owens BD: Preoperative patient reported outcomes predict the development of symptomatic knee osteoarthritis following ACL reconstruction surgery at 7-year follow-up. Gordon Research Conference, Andover NH, 5-10 Aug 2018.
274. Kiapour AM, Yang D, Badger GJ, Karamchedu NP, Murray MM, Fadale PD, Hulstyn MJ, Shalvoy RM, Fleming BC: Anatomical predictors of clinical, patient-reported and OA-related outcomes of ACL reconstruction. Orthopaedic Research Society, Austin 2-5 Feb 2019.
275. Kiapour AM, Ecklund K, Murray MM, Fleming BC: MRI-based assessment of longitudinal changes in healing ligament structure within 2 years after ACL surgery. Orthopaedic Research Society, Austin 2-5 Feb 2019.
276. DeFroda SF, Karamchedu NP, Owens BD, Bokshan SL; Sullivan K, Fadale PD, Hulstyn MJ, Shalvoy RM, Badger GJ, Fleming BC: Tibial tunnel widening following anterior cruciate ligament reconstruction: A retrospective 7-year study evaluating the effects of initial graft tensioning and graft selection. Orthopaedic Research Society, Austin 2-5 Feb 2019.
277. Behnke AL, Karamchedu NP, Fleming BC, Beveridge JE: Muscle co-contraction indices of the lower limb are greater in ACL reconstructed patients compared to uninjured controls at 10-12 year follow-up. Orthopaedic Research Society, Austin 2-5 Feb 2019.
278. Flannery SW, Beveridge JE, Fleming EN, Costa MQ, Karamchedu NP, Behnke AL, Proffen BL, Sieker JT, Murray MM, Fleming BC: Longitudinal assessment of meniscus post-ACL repair with MRI T_2* relaxometry. Orthopaedic Research Society, Austin 2-5 Feb 2019.
279. DeFroda SF, Karamchedu NP, Owens BD, Bokshan SL, Sullivan K, Fadale PD, Hulstyn MJ, Shalvoy RM, Badger GJ, Fleming BC: Tibial tunnel widening following anterior cruciate ligament reconstruction: A retrospective 7 year study evaluating the effects of initial graft tensioning and graft selection. American Academy of Orthopaedic Surgeons, Las Vegas NV, 12-16 March 2019.
280. Murray MM, Kalish L, Fleming BC, Flutie B, Thurber L, Freiberger C, Henderson R, Perrone G, Proffen B, Kramer DE, Yen YM, Michali LJ: Bridge-enhanced ACL repair: Two-year results of the first in human study. American

Academy of Orthopaedic Surgeons (AOSSM Specialty day), Las Vegas NV, 16 March 2019.

281. Jones MH, Oak SR, Andrish JT, Brophy RH, Cox CL, Duong CL, Dunn WR, Flanigan DC, Fleming BC, Huston LJ, Kaeding CC, Kolosky M, Kuyumcu G, Lynch TS, Magnussen RA, Matava MJ, Parker RD, Reinke EK, Scaramuzza EA, Smith MV, Winalski C, Wright RW, Zajichek A, Spindler KP: Predictors of radiographic osteoarthritis 2-3 years after ACL reconsrruction: Data from the Multicenter Orthopaedic Outcomes Network onsite (MOON) nested cohort. Osteoarthritis Research Society International, Toronto, 2-5 May 2019.
282. Kiapour AM, Ecklund K, Murray MM, BEAR Trial Team, Fleming BC: Changes in cross-sectional area and signal intensity of healing ACLs and ACL grafts in the first two years after surgery. American Orthopaedic Society of Sports Medicine, Boston, 11-13 July 2019.
283. Beveridge JE, Behnke AL, Karamchedu NP, Maldonados-Rodas C, Fleming BC: Predicted ACL graft stiffness explains variation in increased anterior tibial alignment in ACL-reconstructed subjects at 10-12 year follow-up. International Society of Biomechanics/American Society of Biomechanics, Calgary, 31 July - 4 August 2019.
284. Flannery SW, Beveridge JE, Fleming EN, Costa MQ, Karamchedu NP, Behnke AL, Proffen BL, Sieker JT, Murray MM, Fleming BC: Machine learning model for predicting ACL failure load. International Society of Biomechanics/American Society of Biomechanics, Calgary, 31 July - 4 August 2019.
285. Beveridge JE, Behnke AL, Maldonado Rodas C, Karamchedu NP, Flannery SW, Fleming BC: Relationship between predicted ACL graft stiffness and kinematics at 12-year follow-up. Orthopaedic Research Society, Phoenix, February 8-11, 2020.
286. Flannery SW, Beveridge JE, Kiapour AM, Karamchedu NP, Behnke AL, Proffen BL, Sieker JT, Murray MM, Fleming BC: An improved T_2*-based prediction model for ACL failure load. Orthopaedic Research Society, Phoenix, February 8-11, 2020.
287. Adler C, Newberry J, Desai S, Li N, Ortega J, Karamchedu, NP, Fleming BC, Jayasuriya CT: SDF-1 preconditioned HPC scaffolds mobilize cartilage-derived progenitors and stimulate meniscal fibrocartilage reintegration in human explant tissue culture. Orthopaedic Research Society, Phoenix, February 8-11, 2020.
288. Barnett SC, Murray MM, BEAR Trial Team, Fleming BC, Kiapour AM: ACL size but not signal intensity is influenced by sex, body size and knee anatomy. Orthopaedic Research Society, Phoenix, February 8-11, 2020.
289. Fleming BC, Fadale PD, Hulstyn MH, Shalvoy, RM, Tung GA, Badger, GJ: Long-term outcomes of ACL reconstruction surgery. The OREF Clinical Research Award, Orthopaedic Research Society, Phoenix, February 8-11, 2020.
290. DeFroda DF, Karamchedu NP, Budackia R, Wiley T, Fadale PD, Hulstyn MJ; Shalvoy RM, Badger GJ, Fleming BC, Owens BD: Evaluation of graft tensioning effects in anterior cruciate ligament reconstruction between hamstring and bone-patellar tendon-bone autografts. American Academy of Orthopaedic Surgeons, Orlando, March 24-28, 2020.
291. Flannery SW, Kiapour AM, Edgar DJ, Murray MM, Fleming BC: A Transfer learning approach for automatic segmentation of the surgically treated anterior cruciate ligament. Orthopaedic Research Society, Virtual, 12-16 February 2021.

292. Flannery SW, Kiapour AM, Edgar DJ, Murray MM, Fleming BC: Automated magnetic resonance image segmentation of intact anterior cruciate ligaments. Orthopaedic Research Society, Virtual, 12-16 February 2021.
293. Kiapour AM, Portilla G, Murray MM, Fleming BC: Healing map: A novel Aapproach to track anterior cruciate ligament healing after surgery, Orthopaedic Research Society, Virtual, 12-16 February 2021.
294. Han M, Karimi D, Gholipour A, Murray MM, Fleming BC, Kiapour AM: CISS is a more sensitive sequence to track anterior cruciate ligament remodeling following surgical treatment compared to common clinical sequences. Orthopaedic Research Society, Virtual, 12-16 February 2021.
295. Kiapour AM, Portilla G, Murray MM, Fleming BC: Postoperative changes in signal intensity of the anterior cruciate ligament are location specific implicating variable tissue remodeling across the surgically treated ligament. Orthopaedic Research Society, Virtual, 12-16 February 2021.
296. Zandiyeh P, Parola LR, Fleming BC, Beveridge JE: Muscle activation patterns are chronically altered after anterior cruciate ligament reconstruction. Orthopaedic Research Society, Virtual, 12-16 February 2021.
297. Sun C, Cao C, Fleming BC, Owens BD, Beveridge JE, Mcallister S, Wei L: A2M inhibits catabolism by blocking IL-1β/NF-κB pathway. Orthopaedic Research Society, Virtual, 12-16 February 2021.
298. Sanborn RM, Badger GJ, The BEAR Trial Team*, Yen YM, Murray MM, Christino MA: Psychological readiness to return to sport at 6 months is higher after bridge-enhanced ACL repair than autograft ACL reconstruction. Pediatric Research in Sports Medicine Meeting, Houston, 27-29 Jan 2022.
299. Costa MQ, Badger GJ, Chrostek CA, Carvalho OD, Fadale PD, Hulstyn MJ, Gil HC, Shalvoy RM, Fleming BC: Effect of patient sex and initial graft tension on knee osteoarthritis outcomes at 12 years after ACL reconstruction. Orthopaedic Research Society, Tampa, 4-8 Feb 2022.
300. Flannery SW, Walsh EG, Sanborn R, Chrostek C, Costa MQ, Kaushal S, Murray MM, Fleming BC, Kiapour AM: Differences in quantitative magnetic resonance imaging acquisition parameters for the anterior cruciate ligament require harmonization. Orthopaedic Research Society, Tampa, 4-8 Feb 2022.
301. Menghini D, Kaushal S, Flannery SW, Murray MM, Fleming BC, Kiapour AM: Cross-sectional profile of surgically treated anterior cruciate ligament is heterogenous across its length and influenced by notch width. Orthopaedic Research Society, Tampa, 4-8 Feb 2022.
302. Menghini D, Kaushal S, Flannery SW, Murray MM, Fleming BC, Kiapour AM: Three-dimensional MRI analysis shows sex-specific patterns in changes in anterior cruciate ligament cross-sectional area across its length. Orthopaedic Research Society, Tampa, 4-8 Feb 2022.
303. Pinette M, Fleming BC, Molino J, Proffen B, Murray MM: The effects of male and female sex on the development of posttraumatic osteoarthritis in a porcine knee following ACL surgery. Orthopaedic Research Society, Tampa, 4-8 Feb 2022.
304. Parola LR, Murray MM, Proffen BL, Sant NJ, Karamchedu NP, Costa MQ, Molino J, Pinette MP, Fleming BC: Treatment with an extracellular matrix-blood composite impacts animal gait without damaging joint structure in a Dunkin

Hartley guinea pig model. **Preclinical Models Section 3R Award Finalist.** Orthopaedic Research Society, Tampa, 4-8 Feb 2022.

305. Chang K, Sun C, Fleming BC, Owens BD, Gage A, Beveridge J, Mcallister S, Costa M, Pinette M, Wei L: A novel mechanically stable PTOA model of inflammation: Swine pilot study of drilling adjacent ACL attachment. Orthopaedic Research Society, Tampa, 4-8 Feb 2022.
306. Sun C, Chang K, Fleming BC, Owens BD, Gage A, Beveridge JE, Mcallister S, Costa M, Pinette M, Xiao Y, Wei L: Cartilage damage is associated with synovium inflammation: A novel porcine model of post-traumatic osteoarthritis. Orthopaedic Research Society, Tampa, 4-8 Feb 2022.
307. Thome, AP, O'Donnell R, DeFroda SF, Cohen BH, Cruz AI, Fleming BC, Owens BD. The effect of skeletal maturity on fixation techniques for tibial eminence fractures. American Orthopaedic Association, Providence 14-18 June 2022.
308. Sanborn R, Badger G, Fleming B, Kiapour A, BEAR Trial Team, Murray MM, Yen YM, Kramer D: Preoperative risk factors of subsequent ipsilateral ACL revision surgery following an ACL restoration procedure. Pediatric Research in Sports Medicine Society, Denver 2-4 Feb 2023.
309. Barnes DA, Flannery SW, Badger GJ, Yen YM, Micheli LJ, Kramer DE, Fadale PD, Hulstyn MJ, Owens BD, Ecklund K, Sanborn RM, Costa MQ, Chrostek C, Proffen BL, Sant N, Murray MM, Fleming BC, Kiapour AM: Quantitative MRI biomarkers to predict risk of reinjury within 2 years after Bridge-Enhanced ACL Restoration. Orthopaedic Research Society, Dallas, 10-14 Feb 2023.
310. Barnes DA, Green J, Uzzo C, Kiapour AM, Murray MM, Fleming BC, Flannery SW: Post-surgical artifact correction in MR imaging by deep neural networks. Orthopaedic Research Society, Dallas, 10-14 Feb 2023.
311. Kaushal SG, Kim J-Y, Singh M, Flannery SW, Murray MM, Fleming BC, Kiapour AM: MRI-Based Texture Analysis to Track Anterior Cruciate Ligament Healing Within Two Years After Surgery. Orthopaedic Research Society, Dallas, 10-14 Feb 2023.
312. Singh M, Han M, Karimi D, Flannery SW, Kim J-Y, Tavabi N, Murray MM, Gholipour-Baboli A, Fleming BC, Kiapour AM: LigaNET: A Multi-Modal Deep Learning Approach to Predict the Risk of Subsequent Anterior Cruciate Ligament Injury After Surgery. Orthopaedic Research Society, Dallas, 10-14 Feb 2023.
313. Chang K, Sun C, Fleming BC, Owens BD, Beveridge JE, McAllister S, Costa MQ, Pinette MP, Molino J, Wei L: α2-macroglobulin reduces post-traumatic osteoarthritis cartilage degeneration by inhibiting catabolic pathways. Orthopaedic Research Society, Dallas, 10-14 Feb 2023.
314. Sun C, Chang K, Fleming BC, Owens BD, Bruns R, Beveridge J, Mcallister S, Costa M, Pinette M, Ying X, Wei L: A2m reduces synovial inflammation in a Yucatan mini-pig PTOA model. Orthopaedic Research Society, Dallas, 10-14 Feb 2023.
315. Donnenfield JI, Fleming BC, Murray MM: The varied genetic impact of medium-term anterior cruciate ligament injury on articular cartilage and synovium. OARSI World Congress on Osteoarthritis, Denver, 17-20 Mar 2023.
316. Donnenfield JI, Proffen BL, Fleming BC, Murray MM: Gene expression remains more altered in synovium than in cartilage one year following ACL injury. American College of Sports Medicine, Denver, 30 May - 2 Jun, 2023.

317. Breker AN, Badger GJ, Costa MQ, Chrostek CA, Fadale PD, Hulstyn MJ, Shalvoy RM, Gil HC, Fleming BC: Effect of initial graft tension on knee osteoarthritis outcomes after ACL reconstruction: A randomized controlled clinical trial with 15-year follow-up. Orthopaedic Research Society, Long Beach, 2-6 Feb 2024.
318. Beveridge JE, Hague M, Parola LR, Costa MQ, Molino J, Fleming BC: Static and dynamic constraint in ACL-reconstructed patients at 10- to 15-year follow-up. Orthopaedic Research Society, Long Beach, 2-6 Feb 2024.
319. Barnes DA, Kiapour AM, Beveridge JE, Fleming BC: ACL Specific signal intensity normalization across MRI sequences. Orthopaedic Research Society, Long Beach, 2-6 Feb 2024.
320. Murray CJ, Molino J, Costa M, Fleming BC, Beveridge JE: Approach to evaluate femoral cartilage thickness based on patient geometry. Orthopaedic Research Society, Long Beach, 2-6 Feb 2024.
321. Holtgrewe J, Fleming BC, Beveridge JE: Accuracy and precision of model-based bone tracking for a dynamic hop landing activity. Orthopaedic Research Society, Long Beach, 2-6 Feb 2024.
322. Sun C, Chang K, Fleming BC, Owens BD, Beveridge JE, Wei L: A2M attenuates cartilage degeneration by binding to and blocking the IL-1R1 cascade in a large preclinical pig model. Orthopaedic Research Society, Long Beach, 2-6 Feb 2024.
323. Lemme NJ, Badida R, Hague M, Molino J, Fleming BC, Owens BD: The effect of tibial slope on anterior cruciate ligament graft forces and knee stability with and without concomitant lateral extra-articular tenodesis. American Academy of Orthopaedic Surgeons, San Francisco 12-16 Feb 2024.

INVITED PRESENTATIONS

1. "Rehabilitation Following Anterior Cruciate Ligament Reconstruction", Seminars in Investigation Research. The Clinical Research Center of the University of Vermont and Fletcher Allen Health Care. 24 October 1997 (Local).
2. "Biomechanics of ACL Surgery", Current Concepts in the Treatment and Rehabilitation of Sports Injuries, Burlington, 29-30 September 1994 (Regional).
3. "Biomechanics of ACL reconstruction" Current Concepts in the Treatment and Rehabilitation of Sports Injuries, Burlington, 2-4 October 1996 (Regional).
4. "Clinically Relevant Biomechanics Behavior of the ACL: What Do We Know Today?", Current Concepts in the Treatment & Rehabilitation of Sports Injuries. Burlington, 1-2 Oct. 1998 (Regional).
5. "In Vivo Measurement of ACL Strain Biomechanics", Sports Biomechanics Symposium. American Society of Biomechanics. Pittsburgh, 20-23 October 1999 (National).
6. "In vivo Measurement of ACL Strain Biomechanics", Research Symposium. St. Goran Hospital. Stockholm, 20 January 2000 (International).
7. "Biomechanics of ACL Reconstruction", Instructional Course Lecture: International Society of Arthroscopy, Knee Surgery, and Orthopaedic Sports Medicine. Montreux, 14-18 May 2001 (International).
8. "Knee Bracing", Symposium: International Society of Arthroscopy, Knee Surgery, and Orthopaedic Sports Medicine. Montreux, 14-18 May, 2001. Also published in the ISAKOS Newsletter 5:1, 2001 (International).

9. "ACL Strain Behavior During Rehabilitation Exercises In Vivo", Symposium: Knee Biomechanics During Rehabilitation Exercises. American College of Sports Medicine. Baltimore, May 30–June 2, 2001 (National).
10. "The Biomechanics of the Weight bearing Knee", Knee Biomechanics Symposium. IVth. World Congress on Biomechanics. Calgary, 4-9 August 2002 (International).
11. "ACL Strain During Rehabilitation Exercises In Vivo", Knee Ligament Symposium. IVth. World Congress on Biomechanics. Calgary, 4-9 August 2002 (International).
12. "Process Measurements in Sports Medicine", Sports Medicine Conference. Burlington, 2-4 October 2002 (Regional).
13. "Accelerated versus non-accelerated rehabilitation following ACL reconstruction" Sports Medicine Conference. Burlington, 2-4 October 2002 (Regional).
14. "Biomechanics of healing ACL grafts", Workshop entitled "ACL: Healing Following Injury, Reconstruction, and Rehabilitation". Orthopaedic Research Society. New Orleans, 2-5 February 2003 (National).
15. "ACL Biomechanics" Research Retreat II on ACL Injuries: The Gender Bias." Lexington, 4-5 April 2003 (National).
16. "The Role of Instrumented Laxity Testing in ACL Reconstruction", Multicenter Orthopaedic Outcomes Network. Nashville, 17 May 2004 (National).
17. "Rehabilitation Exercises for the ACL Reconstructed Athlete", National Athletic Trainers Association. Baltimore, 14-19 June 2004 (National).
18. "Biomechanics of ACL Reconstruction", Instructional Course - Integrated ACL Research: Healing Following Injury, Reconstruction, and Rehabilitation. American Orthopaedic Society for Sports Medicine. Quebec City, 24-27 June 2004 (International).
19. "The Relationship Between Initial Graft Biomechanics and Changes in Knee Laxity During Healing", International Society for Arthroscopy, Knee Surgery, and Sports Medicine. Hollywood, 3-7 April 2005 (International).
20. "Design evaluation criteria for tendon & ligament", Gordon Conference on Musculoskeletal Biology & Bioengineering. Andover, 23-27 July 2006 (International).
21. "Treating the ACL-injured knee", Keynote Address. Lifespan/Brown Medical School Research Celebration. Providence, 9 November 2006 (Regional).
22. "Tissue Engineering Evaluation Criteria for Musculoskeletal Tissue Repair", Consensus Conference, Hilton Head, 25-29 April 2007 (National).
23. "Randomized Controlled Trials of ACL Reconstruction: Thoughts, Prelim Data & Other Considerations", Multicenter Orthopaedic Outcomes Network. Nashville, 11 May 2007 (National).
24. "Reconstruction of the ACL using Biologically Enhanced Patellar Tendon Graft", Multicenter Orthopaedic Outcomes Network. Iowa City, 26 October 2007 (National).
25. "Can We Prevent Osteoarthritis after an ACL Injury?", Graduate Seminar, Departments of Bioengineering, Musculoskeletal Research Center, Orthopaedic Surgery, and the McGowan Institute for Regenerative Medicine at the University of Pittsburgh. Pittsburgh, 7 February 2008 (National).
26. "Can We Prevent Osteoarthritis after an ACL Injury?", Grand Rounds, Harvard Medical School/Mass General Hospital, Boston, 20 February 2008 (National).

27. "Joint trauma with ACL injury: The beginning of the end?", Symposium Lecture, ACL Study Group. Engelberg, 23-28 March 2008 (International).
28. "Can We Prevent Osteoarthritis after an ACL Injury?", Research Seminar, Children's Hospital Boston, Boston, 14 March 2008 (National).
29. "New Horizons in the Care of Patients with ACL Injury: ACL injury and Osteoarthritis", University of Cincinnati, Cincinnati, 6-7 November 2008 (National).
30. "Tendon & Ligament: Anatomy & Biomechanics", HST020 (Musculoskeletal Pathophysiology); Harvard Medical School, Boston, 9 January 2009.
31. "Can We Prevent Osteoarthritis after an ACL Injury?", Orthopaedic Grand Rounds, Lahey Clinic, Burlington, 11 February 2009 (National).
32. "ACL Reconstruction: Can We Improve on a Great Operation?", Orthopaedic Grand Rounds, University of Pittsburgh, Pittsburgh, 30 September 2009 (National).
33. "Supplemental intra-articular lubricin with and without hyaluronic acid delays the progression of post-traumatic arthritis in the anterior cruciate ligament deficient rat knee", Gordon Conference on Musculoskeletal Biology & Bioengineering. Andover, 3 August 2010 (International).
34. "Can We Prevent Osteoarthritis After ACL Injury?", Research Seminar, Dept of Biomedical Engineering, Tufts University. Medford, 31 January 2011 (National).
35. "Can We Prevent Osteoarthritis After ACL Injury?", Orthopaedic Grand Rounds, Duke University, Durham, 30 March 2011 (National).
36. "Mechanisms of Post-Traumatic Osteoarthritis in the ACL-deficient Knee", Research Seminar, Dept of Biomedical Engineering, Duke University, Durham, 30 March 2011 (National).
37. "Mechanisms of Post-Traumatic Osteoarthritis in the ACL-Injured Knee", Research Seminar, Kobe University Hospital, Kobe, Japan, 13 June 2011 (International).
38. "Mechanisms of Post-Traumatic Osteoarthritis in the ACL-Injured Knee", Research Seminar, Hiroshima University Hospital, Hiroshima, Japan, 14 June 2011 (International).
39. "Can We Prevent Osteoarthritis After ACL Injury?", Keynote Lecture, 3rd Annual Meeting of the Japanese Orthopaedic Society of Knee, Arthroscopy and Sports Medicine, Sapporo, Japan, 16 June 2011 (International).
40. "Can We Prevent Osteoarthritis After ACL Injury?", Research Seminar, University of Calgary, Calgary, 3 October 2011 (International).
41. "Can We Prevent Osteoarthritis After ACL Injury?", Grand Rounds, University of Massachusetts Medical School, Worcester, 14 December 2011 (National).
42. "Biological Approaches for OA Prevention after ACL Injury", ACL Study Group, Jackson Hole, 12-16 February 2012 (International).
43. "Traveling Scientist Report: Phuket to Jackson Hole", ACL Study Group, Jackson Hole, 12-16 February 2012 (International).
44. "The Effect of Initial Graft Tension after ACL Reconstruction", Grand Rounds, University of Vermont, Burlington, 13 June 2013 (National).
45. "Can We Prevent Osteoarthritis After ACL Injury?", Visiting Professor Lectureship, University of Vermont, Burlington, 14 June 2013) (National).

46. "The Effects of Initial Graft Tension after ACL Reconstruction with a Focus on Post-traumatic Arthritis", Grand Rounds, Rhode Island Hospital, Providence, 11 September 2013 (Local).
47. "The Etiology and Pathophysiology of Early OA following ACLR", Symposium: The Early Development of Osteoarthritis following ACLR: Can It Be Prevented?" ACL Study Group, Capetown, 26-30 January 2014 (International).
48. "Biologics for the Treatment of ACL Injuries: Implications and Future Directions", New England Sports and Orthopedic Rehabilitation Summit 2014; Advances in Rehabilitation of the Lower Extremity, Providence, 5 April 2014 (Local).
49. "Randomized Control Trials – ACL Tension Study", Multicenter Orthopaedic Outcomes Network Meeting, Cleveland, 2 May 2014 (National).
50. "MRI and ACL Graft Healing", Multicenter Orthopaedic Outcomes Network Meeting, Cleveland, 2 May 2014 (National).
51. "Osteoarthritis Following ACL Reconstruction: Can We Improve Outcomes?", Human Performance Lab Musculoskeletal Research Seminar Series, University of Calgary, Calgary 29 May 2014 (International).
52. "Osteoarthritis After ACL Injury: Can We Improve Outcomes?", Grand Rounds, Steadman Philippon Research Institute, Vail 20 October 2014 (National).
53. "Osteoarthritis Following ACL Reconstruction: Can We Improve Outcomes?", Research Seminar, University of Delaware, Newark, 8 April 2015 (National).
54. "Assessing Outcomes of ACL Surgery", ACLR Outcomes Symposium, 2016 Annual Meeting of the American Orthopaedic Society for Sports Medicine, Colorado Springs 9 July 2016 (National).
55. "How Important is Initial Graft Tension on ACL Outcomes", German Arthroscopy and Joint Surgery Society, Basel 15-17 September 2016 (International).
56. "Advances in ACLR—Future Surgical and Bioengineering Horizons", 5th Annual New England Sports and Orthopedic Rehabilitation Summit 2017; Advances in ACL Reconstruction, Rehabilitation, Injury Prevention, Warren Alpert Medical School, Providence, 1 April 2017 (Local).
57. "MR-based Approach to Assess the Integrity of Healing Ligaments & Grafts in vivo", Vail Scientific Summit, Vail 23-26 August 2017 (National).
58. "Joint Injuries & Arthritis: A Translational Perspective", Research Seminar, Rhode Island Hospital, 29 November 2017 (Local).
59. "Osteoarthritis After Joint Injury: Can We Improve Outcomes?", Orthopaedic Grand Rounds, Brigham and Women's hospital, Harvard Medical School, 13 December 2017 (National).
60. "MR-based Approach to Assess the Integrity of Healing Ligaments & Grafts In Vivo", Translational Research Seminar, Brigham and Women's hospital, Harvard Medical School, 13 December 2017 (National).
61. "MR-based Approach to Assess the Integrity of Healing Ligaments & Grafts In Vivo", Michigan Center for Human Athletic Medicine and Performance (MCHAMP) Research Lecture, University of Michigan, 5 April 2018 (National).
62. "Time Zero", AOSSM Medical Publishing Group Reviewers Workshop, American Orthopaedic Society for Sports Medicine Annual Meeting, San Diego, 6 July 2018 (National).

63. “Strategies for Minimizing Posttraumatic Osteoarthritis after ACL Injury”, Keynote Lecture, Translation in Regenerative Medicine, Regensburg, 1 December 2018 (International).
64. “Strategies for Minimizing Posttraumatic Osteoarthritis after Joint Injury”, Research Seminar. University of Nebraska Medical Center, Omaha, 25 January 2019 (National).
65. “Why do Females Tear Their ACLs more than Males?”, TRIA Orthopaedic and Sports Medicine Conference, Minneapolis, 1 February 2019 (National).
66. "Can We Prevent Osteoarthritis After an ACL Injury?", Grand Rounds. Mayo Clinic, Rochester, 20 May 2019 (National).
67. "MR-based Approach to Assess the Integrity of Healing Ligaments & Grafts In Vivo", Musculoskeletal Research Conference. Mayo Clinic, Rochester, 20 May 2019 (National).
68. “Bridge-Enhanced ACL Repair: From Concept to Clinical Trial”, ORS Musculoskeletal Biology Workshop. Sun Valley, 25-28 July 2019 (National).
69. “Research as a Platform for Junior Faculty Career Advancement”, Yale University, New Haven, 30 April 2021 (National).
70. “Funding Your Research”, Research Rounds, Orthopedic Clinical Effectiveness Research Center, Boston Children’s Hospital, Boston, 5 Nov 2021 (Regional).
71. “Progression of BEAR Technique: Concept to commercialization: the preclinical model is pivotal in the journey”, ORS Preclinical Models Workshop, Tampa 4 Feb 2022 (National).
72. “How to Write an Impactful Biosketch for a K-award Submission”, ORS Workshop, 8 February Tampa 2022 (National).
73. “Biomechanics of ACL Surgery”, Annual Brown Orthopedics Symposium “Pediatric and Adolescent Sports Medicine Update”, Providence, 30 April 2022 (Regional).
74. “Can Rocket Science Save Orthopedic Innovation”, Duke Grand Rounds, Durham, 22 June 2022 (National).
75. “Clinical Trial Updates and Quantitative MRI as a Predictor of ACL Surgery Outcomes”, 3rd Annual William E. Garrett, Jr, MD, PhD Research Day, Durham, 22 June 2022 (National).
76. “Panel Discussion: Insights into Careers in the Musculoskeletal Field”, Musculoskeletal Biology and Bioengineering (GRS), Gordon Research Seminar, Andover NH, 7 Aug 2022 (National).
77. "Predicting Anterior Cruciate Ligament (ACL) Failure Load with MRI as a Prospective Imaging Biomarker for Revision Surgery", New Approaches to Accelerate Discovery in the Musculoskeletal System, Musculoskeletal Biology and Bioengineering, Gordon Research Conference, Andover NH, 7-12 Aug 2022 (National).
78. “Quantitative MRI Biomarkers to Predict Risk of Reinjury Within 2 Years After ACL Surgery”, ACL Study Group, St. Kitts, 29 Jan – 2 Feb 2023 (International).
79. “The Utility of Quantitative MRI in ACL Surgery Postoperative Management”, Workshop, Orthopaedic Research Society, 13 February 2023 (National).
80. “Quantitative MRI to Assess the Strength of Healing Ligaments & Grafts In Vivo”, Biomedical Engineering Research Seminar, Brown University, 4 Apr 2024 (Local).

81. "Quantitative MRI to Assess the Strength of Healing Ligaments & Grafts In Vivo", MGB Combined Orthopaedic Research Seminar Series, 8 May 2024 (Regional).
82. "Quantitative MRI to Assess the Strength of Healing Ligaments & Grafts In Vivo", University of Wisconsin Department of Orthopedics and Rehabilitation Research Forum, 13 May 2024 (National).
83. "When is a Tissue Healed Enough to Return to Activity?", University of Wisconsin Department of Orthopedics and Rehabilitation Research Forum, 13 May 2024 (National).

GRANTS

1. Cervical Spine Research Society (Krag): Pin force measurement in a halo-vest orthosis. $10,000 (direct); 12/96-11/97; Co-investigator.
2. Orthopaedic Research and Education Foundation (Institutional Grant; Fleming): Pin force measurement in a halo-vest orthosis. $14,465 (direct); 12/96-11/97; Principal Investigator. National Institutes of Health (R03-AR45027; Fleming): An experimental model to evaluate ACL graft healing. $150,000 (direct); 09/97-09/00; Principal Investigator.
3. AO/ASIF Foundation (Krag): Development of a Telemetered Implant to Measure Spine Loads In vivo. $72,785 (direct); 10/97-09/98; Co-investigator.
4. Fletcher Allen Health Care Patient Oriented Research Grant (Fleming): A prospective, randomized study of anterior cruciate ligament reconstruction: A pilot study. $15,000 (direct); 12/97-11/98; Principal Investigator.
5. Orthopaedic Research and Education Foundation (Institutional Grant; Fleming): Validation of a combined model of the tibiofemoral and patellofemoral joints. $14,850 (direct); 06/98-05/99; Principal Investigator.
6. National Football League Charities Medical Research Grant (Fleming): In vivo measurement of anterior cruciate ligament strain during rehabilitation exercises. $85,000 (direct); 02/99-03/01; Principal Investigator.
7. AO/ASIF Foundation (Krag): "Development of a telemetered implant to measure spine loads In vivo" (Competitive Renewal). $50,000 (direct); 1/2000-12/2001; Co-investigator.
8. National Football League Charities Medical Research Grant (Fleming): In vivo measurement of anterior cruciate ligament strain during rehabilitation exercises in vivo (Competitive Renewal), $79,100 (direct); 1/2001-12/2001; Principal Investigator.
9. GOTS-Beiersdorf Research Award (Fleming): In vivo measurement of Achilles tendon strain, $15,000; 01/01-12/01; Principal Investigator.
10. Arthritis Foundation Biomedical Science Grant (Johnson): Prospective randomized investigation of rehabilitation following anterior cruciate ligament reconstruction. $243,000; 07/98-09/02; Co-investigator.
11. Arthritis Foundation Biomedical Science Grant (Beynnon): An in vivo model for load induced articular cartilage degeneration. $243,000; 01/01-12/03; Co-investigator.
12. National Football League Charities Medical Research Grant (Fleming): The effects of initial graft tension on articular cartilage following anterior cruciate ligament reconstruction. $184,000 (direct); 09/03 – 08/05; Principal Investigator.

13. National Institutes of Health (R01-AR047910; Fleming): Effects of initial graft tension on ACL reconstruction: A prospective, randomized clinical study comparing two tensioning techniques. $1,244,000 (direct); 09/03-08/09; Principal Investigator.
14. National Institutes of Health (R01-AR049199; Fleming): "Osteoarthritis following ACL reconstruction". $1,245,000 (direct); 09/03-08/08; Principal Investigator.
15. Arthroscopy Association of North America Research Grant (Bradley): Effect of initial graft tension on tibiofemoral contact pressures. $20,000; 07/04-06/05; Co-investigator/mentor.
16. National Institutes of Health (R01-AR047910S1; Fleming): Effects of initial graft tension on ACL reconstruction (Supplement). $600,000 (direct); 12/05-08/08; Principal Investigator.
17. Brown University – Office of the Vice President for Research; Research Seed Grant (Brainerd) Development and verification of CTX imaging for musculoskeletal biomechanics research. $82,269, 7/06 – 6/07; Co-investigator.
18. National Institutes of Health (2R01-AR053684; Spindler): Prognosis and Predictors of ACL Reconstruction: A Multicenter Cohort Study. 09/25/06-08/31/20; Co-Investigator.
19. Keck Foundation (Brainerd): Proposal to Design and Build a Dynamic 3D Skeletal Imaging System. $1,800,000 (direct); 2/07 – 1/10; Co-investigator.
20. Orthopaedic Research & Education Foundation Resident-Clinician Scientist Training Grant (Plante): Tibiofemoral Contact Pressures: Comparison of Single-Bundle and Double-Bundle Reconstructive Techniques. $20,000 (direct), 7/07 – 6/08; Mentor/Co-investigator.
21. National Institutes of Health COBRE Center of Excellence (P20-RR024484; Chen): Skeletal Health and Repair (Phase I). $6,000,000 (direct); 10/07-09/12; Project Mentor/Core Co-Director.
22. Brown University/Women & Infants Hospital National Center of Excellence in Women's Health; Innovations in Women's Health Research Seed Grant (Chien): Biomechanical response of the cervix to compression. $50,000; 01/08-12/09; Co-investigator (PI – E. Chien).
23. National Institutes of Health (R21 AR055937; Jay): Restitution of Lubrication in ACL Deficient Joints Preventing Wear. $275,000 (direct); 04/08-03/10; Co-investigator.
24. National Institutes of Health (1R01 AR056834; Fleming/Murray) Biologically Enhanced Healing of Autograft ACL Reconstruction. $1,480,000 (direct); 04/09-03/13; Co-Principal Investigator.
25. National Football League Charities Medical Research Grant (Bowers/Fleming): ACL Reconstruction using Biologically Enhanced Patellar Tendon Autograft, $124,985 (direct); 01/2009-06/2011; Principal Investigator.
26. National Institutes of Health (2R01 AR047910; Fleming) Effects of Initial Graft Tension on ACL Reconstruction. $1,250,000 (direct); 07/09-06/15; Principal Investigator.
27. National Institutes of Health (1R01 AR056834S1; Fleming/Murray) Biologically Enhanced Healing of Autograft ACL Reconstruction (Supplement). $878,468 (direct); 08/01/03-07/31/11; Co-Principal Investigator.

28. National Institutes of Health (1R41 AR057276; Tribologics/Jay) Tribosupplementation of Injured Joints (Phase I). $234,545 (Subcontract direct); 09/30/09-08/31/11; Subcontract Principal Investigator.
29. National Institutes of Health (2R01 AR054099; Murray) The Effect of Age on Functional ACL Healing. $554,850 (Subcontract direct); 06/01/10-05/31/15; Co-Investigator (Subcontract Principal Investigator).
30. National Institutes of Health (R01-AR059185; Crisco) Thumb CMC Biomechanics and Early OA Progression. $499,136 07/11/11-06/30/21; Co-investigator.
31. Department of Defense (Peer Reviewed Medical Research Program Investigator Initiated Research Award - PR110746; Fleming/Jay) Tribosupplementation with Lubricin in Prevention of Post-Traumatic Arthritis. $2,219,221; 10/01/2012-09/30/2015; Co-Principal Investigator.
32. National Institutes of Health COBRE Center of Excellence (2P20 GM104937; Chen): Skeletal Health and Repair (Phase II). $6,000,000 (direct), 09/12-08/17; Project Mentor/Core Co-Director.
33. National Institutes of Health (2R01 AR054099-S1; Murray) The Effect of Age on Functional ACL Healing. $60,000 (Subcontract direct); 09/30/12-08/31/14, Co-Investigator (Subcontract Principal Investigator).
34. National Institutes of Health (2R42 AR057276; Tribologics/Jay) Tribosupplementation of Injured Joints (Phase II). $378,164 (Subcontract direct); 10/1/13-09/30/16; Subcontract Principal Investigator.
35. National Institutes of Health COBRE Center of Excellence (5P30 GM122732; Chen): Skeletal Health and Repair (Phase III). $3,721,248 (direct), 09/17-08/22; Core Director (Bioengineering).
36. National Institutes of Health (1R01 AR065462; Fleming/Murray) Non-invasive assessment of ligament healing. $1,290,285 (direct); 10/01/14-09/31/19; Co-Principal Investigator.
37. National Institutes of Health (2R01 AR056834; Fleming/Murray) Bio-enhanced ACL repair as a modulator of post-traumatic osteoarthritis. $1,931,027 (direct); 10/01/14-09/31/19; Co-Principal Investigator.
38. National Institutes of Health (1K99 AR069094; Beveridge) Effects of initial ACL graft tension on dynamic joint motion and osteoarthritis progression. $168,500 (direct); 09/01/16-08/31/19; Mentor.
39. National Institutes of Health (1R01 AR065462-S1; Fleming/Murray) Non-invasive assessment of ligament healing (Supplement). $250,000 (direct); 10/01/16-09/31/19; Co-Principal Investigator.
40. National Institutes of Health (1R34 AR066631; Murray/Spindler/Fleming) Planning a clinical trial of bio-enhanced ACL repair versus ACL reconstruction. $500,000 (direct); 03/01/17-02/28/20; Multiple Principal Investigator.
41. Department of Defense (W81XWH-17-2-0016; Parrish/Murray) Lyophilized injectable for point of care therapeutic for post-traumatic osteoarthritis. $737,500 (direct/RIH); 06/15/17-12/14/22; Site Principal Investigator.
42. National Institutes of Health (1R01 AR074131; Spindler) BEAR-MOON: A two-arm noninferiority blinded randomized clinical trial comparing ACL repair with BEAR device vs standard of care autograft. $639,575 (direct/RIH); 07/01/18-06/30/2025; Co-Investigator.

43. Department of Defense (Peer Reviewed Medical Research Program Investigator Initiated Research Award - PR180633; Wei) Intra-articular injection of Alpha-2-Macroglobulin prevents post-traumatic osteoarthritis. 08/15/2019-08/14/2023; Co-Investigator.
44. National Institutes of Health (1R01 AR074973; Fleming) Knee arthrosis after ACL reconstruction: A long-term cohort study with matched controls. $900,000 (direct); 05/01/19-10/30/24; Principal Investigator.

UNIVERSITY TEACHING ROLES

1. Courses (Brown University)

Engineering 100; Projects in Engineering Design (undergraduate)
- Fall 2005 (3 students)
- Fall 2009 (1 student)

Engineering 195/196; Independent Studies in Engineering (undergraduate)
- Fall 2003 (1 student)
- Spring 2004 (1 student)
- Fall 2006 (1 student)
- Spring 2007 (1 student)
- Fall 2007 (1 student)
- Spring 2008 (1 student)
- Spring 2013 (1 student)
- Spring 2014 (1 students)
- Fall 2017 (2 students)
- Spring 2017 (1 student)

Biology 195/196; Directed Research/Independent Studies (undergraduate)
- Fall 2005 (1 student)
- Spring 2006 (1 student)
- Fall 2009 (1 student)
- Spring 2010 (1 student)
- Fall 2011 (2 students)
- Spring 2012 (2 students)
- Spring 2013 (1 students)
- Fall 2019 (1 student)
- Spring 2020 (1 student)
- Fall 2023 (1 student)
- Spring 2024 (1 student)

Engineering 297/298**;** Special Projects, Reading, Research & Design (graduate)
- Fall 2005 (2 students)
- Spring 2006 (2 students)
- Fall 2006 (2 students)
- Spring 2007 (1 student)
- Fall 2007 (3 students)
- Spring 2008 (3 students)
- Fall 2008 (2 students)
- Spring 2009 (1 student)
- Fall 2009 (1 student)
- Spring 2010 (1 student)

Fall 2010 (2 students)
Spring 2011 (2 students)
Fall 2011 (2 students)
Spring 2012 (2 students)
Fall 2012 (2 students)
Spring 2013 (2 students)
Fall 2013 (2 students)
Spring 2014 (2 students)
Fall 2014 (1 students)
Spring 2015 (1 student)
Fall 2015 (1 student)
Spring 2016 (1 student)
Fall 2016 (1 student)
Spring 2017 (1 student)
Fall 2017 (3 student)
Spring 2018 (3 student)
Fall 2018 (1 student)
Spring 2019 (1 student)
Fall 2019 (2 students)
Spring 2020 (2 students)
Fall 2020 (2 students)
Spring 2021 (2 students)
Fall 2022 (2 students)
Spring 2022 (2 students)
Fall 2023 (2 students)
Spring 2024 (3 students)

2. Independent Studies (Warren Alpert Medical School of Brown University)
   2005 (2 students)
   2007 (1 student)
   2008 (1 student)
   2010 (1 student)
   2012 (1 student)
   2013 (1 student)
   2014 (2 students)
   2015 (2 students)
   2017 (1 student)

3. Thesis Advisor
   Barnes DA (2022 – 2026): Advancement and Validation of a Quantitative MRI Pipeline to Predict Risk of Subsequent Injury after ACL Surgery. Brown University, doctoral thesis, TBD.
   Flannery SW (2017 – 2022): An End-to-End Pipeline for Quantitative MRI Analysis of Ligament/Graft Healing, Brown University, doctoral thesis, March 2022.
   Biercevicz AM (2010 – 2015): Magnetic Resonance Imaging Techniques to Determine the Structural Properties as an Outcome Measure of Anterior

Cruciate Ligament Reconstruction or Primary Repair, Brown University, doctoral thesis, March 2015.

Miranda DL (2007 – 2012): The Application of Biplanar Videoradiography to the Study of Kinematic & Kinetic Factors Associated with Non-Contact ACL Injury. Brown University, doctoral thesis, August 2012.

Bowers ME (2005 – 2010): Partial Meniscectomy and Osteoarthritis: Evaluation with Quantitative MRI. Brown University, doctoral thesis, March 2010.

Karamchedu NP (2022-2024): Factors associated with the occurrence of posttraumatic osteoarthritis 15 years after anterior cruciate ligament reconstruction. University of Connecticut Medical School, Capstone thesis, December 2023.

Edgar, D: Defining the Laws' Texture Signature of Magnetic Resonance CISS and T2* Sequenced Images of the Anterior Cruciate Ligament. Brown University, master's thesis, April 2021.

Samuelson K (2016 – 2017): Limited Evidence Suggests a Protective Association Between Oral Contraceptive Pill Use and Noncontact Anterior Cruciate Ligament Injuries in Females: A Systematic Review. Brown University, master's Thesis, April 2017.

Rohan AC (2015 – 2016) Assessing Ligament Degeneration using an Alternative Histological Assessment. Brown University, master's thesis, April 2016.

Smith DA (2013 – 2014): Kinematic Accuracy of MRI Derived Bone Models used in XROMM 3D Motion Analysis, Brown University, master's thesis, April 2014.

Yongpravat C (2007 – 2008): Tibiofemoral Contact Pressures: A Comparison of Single-Bundle and Double-Bundle Reconstructive Techniques. Brown University, master's thesis, May 2008.

Le N-A (2005 – 2007): Assessment of Mechanical Properties and Fixed Charge Density in Goat Articular Cartilage using Indentation Methods and Biochemical Analysis. Brown University, master's thesis, February 2007.

Brady MF (2006 – 2007): Effects of Initial Graft Tension on the Tibiofemoral Compressive Forces and Joint Position after Anterior Cruciate Ligament Reconstruction. Brown University, master's thesis, May 2009.

Coats-Thomas M (2012 – 2014): An Analysis of ACL Injury: Mechanisms Behind the Observed Differences between Male and Female ACL-Intact and ACL-Reconstructed Subjects, Brown University, senior honors thesis (undergraduate), May 2014.

Tarke M (2017 – 2018): Sensitivity of knee joint motion calculated from CT- and MRI- derived bone models, Brown University, senior honors thesis (undergraduate), May 2018.

Lee J (2017 – 2018): Comparing histological predictors of ACL healing to MRI variables in repaired ligaments at early healing stages, Brown University, senior honors thesis (undergraduate), May 2018.

Lo M (2017 – 2018): The Functional Role of Lubricin in Preventing Fibrosis of the Knee Joint, Brown University, senior honors thesis (undergraduate), May 2018.

Breker A (2023 – 2024): Effect of initial graft tension on knee osteoarthritis outcomes after ACL reconstruction: A randomized controlled clinical trial

with 15-year follow-up, Brown University, senior honors thesis (undergraduate), May 2024.

4. Thesis Committees

Uh BS: The Effect of Weight Bearing and Bracing on Anterior/Posterior Knee Laxity: The Introduction of the Vermont Knee Laxity Device and a Direct Comparison with the KT-1000 Arthrometer and Planar Stress Radiography. University of Vermont, master's thesis, June 1998.

Brown DD: The Biomechanics of Functional Knee Bracing on Subjects with Anterior Cruciate Ligament Deficient Knees during Non-weight Bearing and Weight Bearing Conditions. master's thesis, University of Vermont, March 1999.

Dabirrahmani D: An Experimental and Theoretical Investigation of Knee Kinematics: A Theoretical Application to Joint Reconstruction Techniques. University of South Wales, Sydney Australia, doctoral thesis, February 2007.

Wald AJ: The Use of Inter-bone Distance Metrics to Classify in vivo Motion of the Scaphotrapezio-Trapezoidal (STT) Joint. Brown University, master's thesis, November 2007.

Leventhal EL: Carpal Kinematics During Functional Tasks. Brown University, doctoral thesis, May 2009.

Drewniak EI: Ex vivo Wear of Articular Cartilage. Brown University, doctoral thesis, May 2011.

Rainbow MJ: Determining Carpal Joint Function through Kinematic Analysis and Predictive Modeling. Brown University, doctoral thesis, August 2011.

Beveridge JE: Surface Interactions and Cartilage Damage in Two Ovine Models of Stifle Injury. University of Calgary, doctoral thesis, March 2011.

Waller KA: The Chondroprotective Properties of Lubricin as a Boundary Lubricant and Tribological Supplement. Brown University, doctoral thesis, April 2013.

Wilcox BJ: Biomechanical Basis of Mild Traumatic Brain Injury. Brown University, doctoral thesis, December 2013.

Ludwig TE: Cartilage Boundary Lubrication and Rheology of Proteoglycan 4 + Hyaluronan Solutions and Synovial Fluid. University of Calgary, doctoral thesis, May 2014.

Halilaj E: The Role of Articular Surface Morphomology and Laxity in the Thumb Carpometacarpal (CMC) Joint Kinematics. Brown University, doctoral thesis, September 2014.

Schlossberg B: Development of an Advanced Treatment for Augmentation of Vertebral Compression Fractures. University of South Wales, doctoral thesis, Sydney Australia, March 2016.

Larson K: The Role of Lubricin in Mitigating Alterations to Joint Tissues Experiencing Friction. Brown University, doctoral thesis, April 2017.

Anderson JA: Post-operative outcomes of transphyseal anterior cruciate ligament reconstruction in skeletally immature patients using round-headed cannulated interference screw fixation. University of South Wales, master's thesis, Sydney Australia, June 2017.

Sutermaster BA: Increased and More Rapid in vitro and in vivo Lineage-specific Metabolite Production using a Gene Expression-based Sorting Strategy. Brown University, doctoral thesis, December 2018.

Vakiel P: Direct measurement of the change in in-vivo stresses in ovine stifle joints following trauma using fiber optic sensors. University of Calgary, doctoral thesis, April 2019.

Garcia-Lopez E: Evaluating Dorsal Subluxation on Radiography and Computed-Tomography in Patients with Early Thumb Carpometacarpal Osteoarthritis. Brown University, master's thesis, April 2020.

Wilks BT: Cellular architects: Harnessing fibroblasts to synthesize highly-aligned, collagen-rich tissue construct. Brown University, doctoral thesis, April 2020.

Akhbari B: The role of biomechanics in total wrist arthroplasty (TWA). Brown University, doctoral thesis, March 2021.

Dambruoso T: A study of PRG4 as it relates to uric acid and gout. Brown University, master's thesis, December 2021.

Lin A: Cartilage derived progenitor cells exhibit paracrine effects that direct the healing process. Brown University, master's thesis, April 2022.

Kalshoven J: The biomechanics of the healthy, osteoarthritic, and replaced thumb carpometacarpal (CMC) Joint, Brown University, doctoral thesis, April 2024.

Zalk S: Quantifying Biomechanical Properties of the Anterior Cruciate Ligament in a Rodent Model, Brown University, master's thesis, April 2024.

Paschall L: Identifying mechanobiological deficits in allograft anterior cruciate ligament reconstructions, The Pennsylvania State University, doctoral thesis, June 2024.

Vaughan, Q: Title TBD, Brown University, doctoral thesis, Date TBD.

5. Postdoctoral Research Mentor

   Roemhildt ML (2002-2003) University of Vermont
   Waller KA (2013-2016) Brown University/Rhode Island Hospital
   Beveridge JE (2015-2019) Brown University/Rhode Island Hospital

HOSPITAL TEACHING ROLES

1. Director of Orthopaedic Residents Research Program (2003 – 2013)

2. Basic Science Lectures – Rhode Island Hospital (2003 – present)

   Anterior cruciate ligament
   Ligament & tendon
   Articular cartilage
   Biomechanics

3. Orthopaedic resident research project advisor

2004	Walsh, E	Thumb portal study.
	Banerjee, R	In vivo graft tension study, goats.
2005	Bradley, M	ACL graft tension cadaver study.
	Langer, P	Lateral ankle stability after talar process fracture.

	Tashjian, R	Evaluation of tear size on fixation strength in rotator cuff repairs.
	Ritter, M	ACL perturbation study.
2006	Tocci, S	Rotator cuff injuries.
	Rey, J	Volumetric determination of the meniscus through MRI imaging.
	Mechrefe, A	Guinea pig OA & lubrication study.
	Langer, P	In vitro evaluation of fragment excision on subtalar contact stress.
2007	Plante, M	Double bundle versus single bundle ACL reconstruction.
	Monchik, K	Optimizing the footprint of the rotator cuff repair.
	Teeple, E	Lubrication of the rat knee with recombinant lubricin and HA.
	Fitzgibbons, P	Joint kinematics following a meniscal root tear.
	Zonno, A.	Biomechanical comparison of simulated arthroscopic single row rotator cuff repair with double row bridging repair.
2008	Kayiaros, S.	Intraarticular and periprosthetic tribology in total hip arthroplasty.
	Villareal, R.	Graft laceration and tensile strength of anterior cruciate ligament reconstruction.
	Tompkins, M.	Contact Area and Pressure in Suture Bridge Rotator Cuff Repair Using Knotless Lateral Anchors.
2009	Teeple, E.	The Effects of Supplemental Intra-Articular Lubricin and Hyaluronic Acid on the Progression of Post-Traumatic Arthritis in the Anterior Cruciate Ligament Deficient Rat Knee.
	Villareal, R.	Graft laceration and tensile strength of anterior cruciate ligament reconstruction.
2010	Tompkins, M.	The Use of a Non-Benzodiazepine Hypnotic Sleep-Aid (Zolpidem) in Patients Undergoing Arthroscopically Assisted ACL Reconstruction: Evaluation of the Effect on Post-Operative Narcotic Requirements, Pain, and Fatigue in a Randomized Controlled Clinical Trial.
	Teeple, E.	Arthroscopic Debridement of Cartilage Lesions: Effects on Tissue Mechanics and Chondrocyte Viability.
2011	Sawyer, G.	Tribosupplementation of Injured Joint: Lubricin Half-life Study.
	Teeple, E.	Intervertebral Disc Properties In Lubricin Knockout Mice.
2012	Christino, M.	Psychological factors associated with ACL reconstruction.
	Klinge, S.	Early Laxity and Failure in Anatomic Single- vs. Double-Bundle ACL Reconstruction
2013	Avanian, J.	Microvesicle Levels in the Synovial Fluid of the ACL Injured Knee
2016	Hodax, J.	Effects of Metallic Debris on Inflammatory Cytokines in Synovial Fluid after ACL Reconstruction Surgery
2017	DeFroda, S.	Repeatability of Signal Intensity and Volume Measurements of ACL Grafts with Magnetic Resonance Imaging

2018	DeFroda, S.	Tibial Tunnel Widening Following Anterior Cruciate Ligament Reconstruction
2020	Thome, A.	The Effect of Skeletal Maturity on Fixation Techniques for Tibial Eminence Fractures
2021	Lemme, N.	The Effect of Posterior Tibial Slope on Anterior Cruciate Ligament Graft Forces and Knee Stability with and without Concomitant Lateral Extraarticular Tenodesis