CURRICULUM VITAE

ADDRESS
Human Performance Laboratory
Faculty of Kinesiology
University of Calgary
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Calgary, AB, T2N 1N4
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EDUCATION

Doctor of Philosophy
Iowa State University, Ames, IA
Department of Kinesiology
Graduation Date: Summer 2009
Concentration: Biomechanics
Secondary Areas: Motor Control, Engineering Mechanics
Minor: Engineering Mechanics
Dissertation: "Internal structural loading of the lower-extremity during running: Implications for skeletal injury".
Advisor: Timothy R. Derrick, Ph.D.

Master of Science
California State University Sacramento, Sacramento, CA
Kinesiology and Health Science Department
Graduation Date: Spring 2005
Concentration: Biomechanics
Secondary Area: Exercise Physiology
Thesis: "A biomechanical analysis of running in a weightless environment".
Advisor: Alan Hreljac, Ph.D.

Bachelor of Science
California State University Sacramento, Sacramento, CA
Kinesiology and Health Science Department
Graduation Date: Spring 2003
Major: Kinesiology
Emphasis: Exercise Science

PROFESSIONAL EXPERIENCE

Employment/Appointments

2019-present **Associate Professor,** Human Performance Laboratory, Faculty of Kinesiology, University of Calgary; Division of Physical Medicine and Rehabilitation, Department of Clinical Neurosciences, Cumming School of Medicine, University of Calgary; Member of the Biomedical Engineering (BME) Graduate Program and McCaig Institute for Bone and Joint Health.

2017-present **Associate Director,** Biomedical Engineering Graduate Program, University of

Calgary.

2016-2017 **Interim Co-Director,** Human Performance Laboratory, Faculty of Kinesiology, University of Calgary.

2014-2019 **Assistant Professor,** Division of Physical Medicine and Rehabilitation, Department of Clinical Neurosciences, Cumming School of Medicine, University of Calgary.

2013-2019 **Assistant Professor,** Human Performance Laboratory, Faculty of Kinesiology, University of Calgary; Member of the Biomedical Engineering (BME) Graduate Program and McCaig Institute for Bone and Joint Health.

2011-2013 **NIH (NRSA) Postdoctoral Research Fellow,** Department of Kinesiology, University of Illinois at Chicago.

2009-2011 **Postdoctoral Research Fellow,** Department of Kinesiology, University of Illinois at Chicago.

2005-2009 **Graduate Research/Teaching Assistant**, Department of Kinesiology, Iowa State University.

2005-2009 **Laboratory Technician**, Biomechanics Laboratory, Iowa State University. Responsibilities included the measurement of shock attenuating properties of materials systems for athletic footwear and playing surfaces.

Sum 2006 **Research Scientist**, Human Adaptation and Countermeasures, NASA, Johnson Space Center, Houston, TX. Responsibilities included research related to exercise as a countermeasure for bone loss and muscle atrophy associated with long duration space flight.

Sum 2005
Sum 2004 **Intern at NASA, Johnson Space Center**, Houston, TX. Responsibilities included research examining biomechanical differences between running on earth vs. running in microgravity.

2004-2005 **Forensic Biomechanics Assistant**, Biomechanical Consultants of California, Davis, CA. Responsibilities included investigation and analysis of accident reconstruction, including car, recreational, trip and fall, and occupational accidents.

2003-2005 **Graduate Research/Teaching Assistant**, Kinesiology and Health Science Department, California State University, Sacramento.

Teaching

2017- **Musculoskeletal Research Seminar 1 and 2** (University of Calgary, Lead Instructor, Undergraduate Level). Students attend, discuss, and critique a series of research seminars in the Human Performance Laboratory.

2016- **Advanced Techniques in Biomechanics** (University of Calgary, Lead Instructor, Undergraduate Level). Exploring basic concepts of analysis and modeling in biomechanics, including numerical implementation and solution.

2015-	**Bone/Joint Biomechanics and Osteoarthritis** (University of Calgary, Team Instructor, Graduate Level). Graduate course focused on the biomechanics of bones and joints with specific emphasis on bone/joint adaptation and the development of osteoarthritis and other bone/joint pathologies.
2015-	**Quantitative Biomechanics** (University of Calgary, Lead Instructor, Undergraduate Level). Introductory course on the basic principles of force system analysis, impulse-momentum, work-energy and particle kinematics applied to biological structures, including extensive mathematical analyses.
2013	**Biomechanics** (University of Illinois at Chicago, Lead Instructor, Undergraduate Level). Introductory course for non-engineering students to the science of biomechanics with particular emphasis on the application of mechanics to the analysis of normal and pathological human movement.
2008	**Biomechanics** (Iowa State University, Lead Instructor, Undergraduate Level). Introductory course on the mechanics of human movement, with particular emphasis on exercise, sports, and physical activity.
2008	**Motor Control** (Iowa State University, Laboratory Instructor, Undergraduate Level). Introductory course on neuromotor control and behavioral motor control from an information-processing and motor learning perspective.
2005-2008	**Biomechanics** (Iowa State University, Laboratory Instructor, Undergraduate Level). Introductory course on the mechanics of human movement, with particular emphasis on exercise, sports, and physical activity.
2003-2005	**Biomechanics** (California State University, Sacramento, Laboratory Instructor, Undergraduate Level). Introduction to fundamental mechanical concepts as they apply to human movement. Laws of physics, mechanical principles and mathematical concepts are integrated in studying man as a biological entity.
2003-2005	**Kinesiology** (California State University, Sacramento, Laboratory Instructor, Undergraduate Level). Anatomical concepts and physical laws as applied to human movement emphasizing the effects of individual and environmental variables.

PROFESSIONAL MEMBERSHIPS

2018-present	Canadian Society of Biomechanics
2012-present	American Society of Bone and Mineral Research
2012-present	Orthopaedic Research Society
2010-present	Sigma XI, the Scientific Research Honor Society
2007-present	International Society of Biomechanics
2003-present	American Society of Biomechanics
2003-present	American College of Sports Medicine

HONORS and AWARDS

2018	Outstanding Supervisor Award - Biomedical Engineering Graduate Program, University of Calgary
2014	Participant in the United States Bone and Joint Initiative – Young Investigators Initiative Grant Mentoring Program
2014	Harold M. Frost Young Investigator Award, American Society of Bone and Mineral Research
2014	Clinical Biomechanics Award, American Society of Biomechanics
2011	Student Writing Award, American Kinesiology Association
2010	*Sigma XI, Zaffarano Prize for Graduate Student Research, Iowa State University (Honorable Mention)*
2009	Motion Analysis Corporation Student Research Award, American College of Sports Medicine Biomechanics Interest Group
2009	University Research Excellence Award, Department of Kinesiology, Iowa State University
2008	Student Research Award, 26th Annual International Conference on Biomechanics in Sport
2005	Barbara E. Forker, Ph.D. Scholarship
2005	Participant in the 1st Annual Summer Science Institute, Human Adaptation & Countermeasure Office, NASA, Johnson Space Center
2004	Student Research Award, 25th Annual SWACSM Meeting

SCHOLARLY ACTIVITY

Book Chapters

1. **Edwards W.B.**, Derrick T.R., and Hamill J. (2018). Time series analysis in biomechanics. In B. Müller & S. I. Wolf (Eds.), *Handbook of Human Motion,* Springer International Publishing.

Invited Publications

1. Haider I.T., Schneider P.S., and **Edwards W.B.** (2019). The role of lower-limb geometry in the pathophysiology of atypical femoral fracture. *Current Osteoporosis Reports*, 17, 281-290.
2. **Edwards W.B.** (2018). Modeling overuse injuries in sport as a mechanical fatigue phenomenon. *Exercise and Sport Sciences Reviews*, 46, 224-231.
3. **Edwards W.B.**, and Schnitzer T.J. (2015). Bone imaging and fracture risk after spinal cord injury. *Current Osteoporosis Reports*, 13, 310-317.
4. **Edwards W.B.**, and Troy K.L. (2011). Number crunching: How and when will numerical models be used in the clinical setting? *Current Osteoporosis Reports*, 9, 1-3.

Peer Reviewed Manuscripts (underline indicates trainee under my supervision)

5. Loundagin L.L., Pohl A., and **Edwards W.B.** (In Press). Stressed volume estimated by finite element analysis predicts the fatigue life of human cortical bone: the role of vascular canals as stress concentrators. *Bone.*
6. Haider I.T., Simonion N., Schnitzer T.J., and **Edwards W.B.** (In Press). Stiffness and strength predictions from finite element models of the knee are associated with lower-limb fractures after spinal cord injury. *Annals of Biomedical Engineering.*
7. Loundagin L.L., and **Edwards W.B.** (2020). Stressed volume around vascular canals explains compressive fatigue life variation of secondary osteonal bone but not plexiform bone. *Journal of the Mechanical Behavior of Biomedical Materials,* [Epub ahead of print], doi: 10.1016/j.jmbbm.2020.104002.
8. Bruce O.L., Ramsay M., Kennedy G., and **Edwards W.B.** (2020) Lower limb joint kinetics in jump rope skills performed by competitive athletes. *Sports Biomechanics,* [Epub ahead of print], doi.org/10.1080/14763141.2020.1801823.
9. Khassetarash A., Vernillo G., Martinez A., Baggaley M., Giandolini M., Horvais N., Millet G.Y., and **Edwards W.B.** (2020). Biomechanics of graded running: Part II – joint kinematics and kinetics. *Scandinavian Journal of Medicine & Science in Sports,* 30, 1642-1654.
10. Vernillo G., Martinez A., Baggaley M., Khassetarash A., Giandolini M., Horvais N., **Edwards W.B.**, and Millet G.Y. (2020). Biomechanics of graded running: Part I – stride parameters, external forces, and muscle activations. *Scandinavian Journal of Medicine & Science in Sports*, 30, 1632-1641.
11. Loundagin L.L., Haider I.T., Cooper D.M.L., and **Edwards W.B.** (2020). Association between intracortical microarchitecture and the compressive fatigue life of human bone: a pilot study, *Bone Reports,* 12, 100254.
12. Firminger C.R., Asmussen M.J., Cigoja S., Fletcher J.R., Nigg B.M., and **Edwards W.B.** (2020). Cumulative metrics of tendon load and damage vary discordantly with running speed. *Medicine and Science in Sports and Exercise*, 52, 1549-1556.
13. Baggaley M., Esposito M., Xu C., Unnikrishnan G., Reifman J., and **Edwards W.B.** (2020). Effects of load carriage on biomechanical variables associated with tibial stress fractures in running. *Gait & Posture*, 77, 190-194.
14. Cigoja S., Asmussen M.J., Firminger C.R., Fletcher J.R., **Edwards W.B.,** and Nigg B.M. (2020). The effects of increased midsole bending stiffness of sport shoes on muscle-tendon unit shortening and shortening velocity: a randomised crossover trial in recreational male runners. Sports Medicine Open, 6, 9.
15. Thomas J.M., **Edwards W.B.**, and Derrick, T.R. (2020). Joint contact forces with changes in running stride length and midsole stiffness. *Journal of Science in Sport and Exercise,* 2, 69-76.
16. Vernillo G., Aguiar M., Savoldelli A., Martinez A., Giandolini M., Horvais N., **Edwards W.B.**, and Millet G.Y. (2020). Regular changes in foot strike pattern during prolonged

downhill running do not influence neuromuscular, energetics, or biomechanical parameters. *European Journal of Sports Science*, 20, 495-504.

17. Bruce O.L., Firminger C.R., Wannop J.W., Stefanyshyn D.J., and **Edwards W.B.** (2019) Effects of basketball court construction and shoe stiffness on countermovement jump landings. *Footwear Science*, 11, 171-179.
18. Baggaley M., Vernillo G., Martinez A., Horvais N., Giandolini M., Millet G.Y., and **Edwards W.B.** (2019). Step length and grade effects on energy absorption and impact attenuation in running. *European Journal of Sports Science*, [Epub ahead of print], doi.org/10.1080/17461391.2019.1664639.
19. Clermont C.A., Benson L., **Edwards W.B.**, Hettinga, B.A., and Ferber R. (2019). New considerations for wearable technology data: changes in running biomechanics during a marathon. *Journal of Applied Biomechanics*, [Epub ahead of print], doi.org/10.1123/jab.2018-0453.
20. Greco-Otto P., Baggaley M., **Edwards W.B.**, and Léguillette R. (2019). Water treadmill exercise reduces equine limb segmental accelerations and increases shock attenuation. *BMC Vetrinary Research*, 15: 329, 1-6.
21. Cigoja S., Firminger C.R., Asmussen M.J., Fletcher J.R., **Edwards W.B.**, and Nigg B.M. (2019). Does increased midsole bending stiffness of sport shoes redistribute lower limb joint work during running? *Journal of Science and Medicine in Sport*, 22, 1272-1277.
22. Haider I.T., Simonion N., Saini A.S., Leung F.M., **Edwards W.B.**, and Schnitzer T.J. (2019). Open-label clinical trial of alendronate after teriparatide therapy in people with spinal cord injury and low bone mineral density. *Spinal Cord*, 57, 832-842.
23. Haider I.T., Baggaley M., and **Edwards W.B.** (2019). Subject-specific finite element models of the tibia with realistic boundary conditions predict bending deformations consistent with in-vivo measurement. *Journal of Biomechanical Engineering*, [Epub ahead of print], doi: 10.1115/1.4044034.
24. Xu C., Reifman J., Baggaley M., **Edwards W.B.**, and Unnikrishnan, G. (2020). Individual differences in women during walking affect tibial response to load carriage: the importance of individualized musculoskeletal finite-element models. *IEEE Transactions on Biomedical Engineering*, 67, 545-555.
25. Firminger C.R., Bruce O.L., Wannop J.W., Stefanyshyn D.J. and **Edwards W.B.** (2019). Effect of shoe and surface stiffness on lower limb tendon strain in jumping. *Medicine and Science in Sports and Exercise*, 51, 1895-1903.
26. Lobos S., Cooke A., Simonett G., Ho C., Boyd S.K., and **Edwards W.B.** (2019). Trabecular bone score at the distal femur and proximal tibia in individuals with spinal cord injury. *Journal of Clinical Densitometry*, 22, 249-256.
27. Michalski A.S., **Edwards W.B.**, and Boyd S.K. (2019). The influence of reconstruction kernel of bone mineral and strength estimates using quantitative computed tomography and finite element analysis. *Journal of Clinical Densitometry*, 22, 219-228.

28. Haider I.T., Lobos S.M., Simonian N., Schnitzer T.J., and **Edwards W.B.** (2018). Bone fragility after spinal cord injury: reductions in stiffness and bone mineral at the distal femur and proximal tibia as a function of time. *Osteoporosis International*, 29, 2703-2715.
29. **Edwards W.B.**, Simonian N., Haider I.T., Anschel A.S., Chen D., Gordon K.E., Gregory E.K., Kim K.H., Parachuri R., Troy K.L., and Schnitzer T.J. (2018). Effects of teriparatide and vibration on bone mass and bone strength in people with bone loss and spinal cord injury: a randomized, controlled trial. *Journal of Bone and Mineral Research*, 33, 1729-1740.
30. Troy K.L., and **Edwards W.B.** (2018). Practical considerations for obtaining high quality quantitative computed tomography data of the skeletal system. *Bone*, 110, 58-65.
31. Lobos S., Cooke A., Simonett G., Ho C., Boyd S.K., and **Edwards W.B.** (2018). DXA assessed BMD at the distal femur and proximal tibia in individuals with spinal cord injury: precision of protocol and relation to injury duration. *Journal of Clinical Densitometry*, 21: 338-346.
32. Firminger C.R., Vernillo G., Savoldelli A., Stefanyshyn D.J., Millet G.Y., and **Edwards W.B.** (2018). Joint kinematics and ground reaction forces in overground versus graded running. Gait & Posture, 63: 109-113.
33. Haider I.T., Schneider P., Michalski A., and **Edwards, W.B.** (2018). Influence of geometry on proximal femoral shaft strains: Implications for atypical femoral fracture. *Bone*, 110: 295-303.
34. Loundagin L.L., Schmidt T.A., and **Edwards W.B.** (2018). Mechanical fatigue of bovine cortical bone using ground reaction force waveforms in running. *Journal of Biomechanical Engineering*, 140, 031003.
35. Firminger C.R., Fung A., Loundagin L.L., and **Edwards W.B.** (2017). Effects of footwear and stride length on metatarsal strains and failure in running. *Clinical Biomechanics*, 49: 8-15.
36. Fung A., Loundagin L.L., and **Edwards W.B.** (2017). Experimental validation of finite element predicted bone strain in the human metatarsal. *Journal of Biomechanics*, 60: 22-29.
37. Gruber A.H., **Edwards W.B.**, Hamill J., Derrick T.R., and Boyer K.A. (2017). A comparison of the ground reaction force frequency content during rearfoot and non-rearfoot running patterns. *Gait & Posture*, 56: 54-59.
38. Vernillo G., Giandolini M., **Edwards W.B.**, Morin J.B., Samozino P., Horvais N., and Millet G.Y. (2017). Biomechanics and physiology of uphill and downhill running. *Sports Medicine*, 47, 615-629.
39. Giandolini M., Vernillo G., Samozino P., Horvais N., **Edwards W.B.**, Morin J.B., and Millet G.Y. (2016). Fatigue associated with prolonged graded running. *European Journal of Applied Physiology*, 116, 1859-1873.
40. Hoerzer S., Trudeau M.B., **Edwards W.B.**, and Nigg B.M. (2016). Intra-rater reliability of footwear-related comfort assessments. *Footwear Science*, 8, 155-163.

41. Firminger C.R., and **Edwards W.B.** (2016). The influence of minimalist footwear and stride length reduction on lower-extremity running mechanics and cumulative loading. *Journal of Science and Medicine in Sport*, 19, 975-979.
42. **Edwards W.B.**, Miller R.H., and Derrick T.R. (2016). Femoral strain during walking predicted with muscle forces from static and dynamic optimization. *Journal of Biomechanics*, 49, 1206-1213.
43. Derrick T.R., **Edwards W.B.**, Fellin R.E., and Seay J.F. (2016). An integrative modeling approach for the efficient estimation of cross-sectional tibial stresses during locomotion. *Journal of Biomechanics*, 49, 429-435.
44. **Edwards W.B.**, Troy K.L., Simonian N., and Schnitzer T.J. (2015). Reduction in torsional stiffness and strength at the proximal tibia as a function of time since spinal cord injury. *Journal of Bone and Mineral Research*, 30, 1422-1430.
45. Miller R.H., **Edwards W.B.**, and Deluzio K.J. (2015). Energy expended and knee joint load accumulated when walking, running, or standing for the same amount of time. *Gait and Posture*, 41, 326-328.
46. Bhatia V.A., **Edwards W.B.**, Johnson J.E., and Troy K.L. (2015). Short-term bone formation is greatest within high strain regions of the human distal radius: a prospective pilot study. J*ournal of Biomechanical Engineering*, 137, 011001.
47. McPherson J.G., **Edwards W.B.**, Prasad A., Troy K.L., Griffith J.W., and Schnitzer T.J. (2014). Dual energy x-ray absorptiometry of the knee in spinal cord injury: methodology and correlation with quantitative computed tomography. *Spinal Cord*, 52, 821-825.
48. De Witt J.K., **Edwards W.B.**, Scott-Pandorf M.M., Norcross J.R., and Gernhardt M.L (2014). The preferred walk to run transition speed in actual lunar gravity. *Journal of Experimental Biology*, 217, 3200-3203.
49. Bhatia V.A., **Edwards W.B.**, and Troy K.L. (2014). Predicting surface strains at the human distal radius during an in vivo loading task - finite element model validation and application. *Journal of Biomechanics*, 47, 2759-2765.
50. **Edwards W.B.**, Schnitzer T.J., and Troy K.L. (2014). Reduction in proximal femoral strength in patients with acute spinal cord injury. *Journal of Bone and Mineral Research*, 29, 2074-2079.
51. **Edwards W.B.**, Schnitzer T.J., and Troy K.L. (2014). The mechanical consequence of actual bone loss and simulated bone recovery in acute spinal cord injury. *Bone*, 60, 141-147.
52. **Edwards W.B.**, Schnitzer T.J., and Troy K.L. (2014). Bone mineral and stiffness loss at the distal femur and proximal tibia in acute spinal cord injury. *Osteoporosis International*, 25, 1005-1015.
53. Miller R.H., **Edwards W.B.**, Brandon S.C.E, Morton A.M., and Deluzio K.J. (2014). Why don't runners get knee osteoarthritis? A case for per-unit-distance loads. *Medicine and Science in Sports and Exercise*, 46, 572-579.
54. **Edwards W.B.**, Schnitzer T.J., and Troy K.L. (2013). Bone mineral loss at the proximal femur in acute spinal cord injury. *Osteoporosis International*, 24, 2461-2469.

55. Troy K.L., **Edwards W.B.**, Bhatia V.A., and Bareither M. (2013). In vivo loading model to examine bone adaptation in humans: a pilot study. *Journal of Orthopaedic Research,* 31, 1406-1413.

56. **Edwards W.B.**, Schnitzer T.J., & Troy K.L. (2013). Torsional stiffness and strength of the proximal tibia are better predicted by finite element models than DXA or QCT. *Journal of Biomechanics,* 46, 1655-1662.

57. **Edwards W.B.**, and Troy K.L. (2012). A linear actuated torsional device to replicate clinically relevant spiral fractures in long bones. *Proceedings of the Institution of Mechanical Engineers, Part H, Journal of Engineering in Medicine,* 226, 729-733.

58. **Edwards W.B.**, Derrick T.R., and Hamill J. (2012). Musculoskeletal attenuation of impact shock in response to knee angle manipulation. *Journal of Applied Biomechanics,* 28, 502-510.

59. Gillette J.C., Stevermer K.A., Miller R.H., **Edwards W.B.**, and Schwab C.V. (2012). Lower extremity joint moments during carrying tasks in children. *Journal of Applied Biomechanics,* 28, 156-164.

60. **Edwards W.B.**, and Troy K.L. (2012). Finite element prediction of surface strain and fracture strength at the distal radius. *Medical Engineering and Physics,* 34, 290-298.

61. **Edwards W. B.**, and Troy K.L. (2011). Simulating distal radius fracture strength using biomechanical tests: a modeling study examining the influence of boundary conditions. *Journal of Biomechanical Engineering,* 133, 114501.

62. Thomas J.R., Alderson J.A., Thomas K.T., Campbell A.C., **Edwards W.B.**, Meardon S.A., Elliot B.C. (2011). Is there a general motor program for right versus left hand throwing in children? *Journal of Biosensors and Bioelectronics,* S1:001. doi: 10.4172/2155-6210.S1-001

63. **Edwards W.B.**, Troy K.L, and Derrick T.R. (2011). On the filtering of intersegmental loads during running. *Gait and Posture,* 34, 435-438.

64. De Witt J.K., Perusek G., Lewandowski B., Gilkey K., Savina M., Samorezov S., and **Edwards W.B.** (2010). Locomotion in simulated and real microgravity: Horizontal suspension vs. parabolic flight. *Aviation, Space, and Environmental Medicine,* 81, 1092-1099.

65. Escamilla R.F., Zheng N., MacLeod T.D., Imamura R., **Edwards W.B.**, Hreljac A., Fleisig G.S., Wilk K.E., Moorman C.T., and Andrews J.R. (2010). Cruciate ligament forces between a short and long step forward lunge. *Medicine and Science in Sports and Exercise*, 42, 1932-1942.

66. **Edwards W.B.**, Taylor D., Rudolphi T.J., Gillette J.C., & Derrick T.R. (2010). Effects of running velocity on a probabilistic stress fracture model. *Clinical Biomechanics*, 25, 372-377.

67. Escamilla R.F., Zheng N., MacLeod T.D., Imamura R., **Edwards W.B.**, Hreljac A., Fleisig G.S., Wilk K.E., Moorman C.T., and Andrews J.R. (2010). Cruciate ligament tensile forces during the forward and side lunge. *Clinical Biomechanics*, 25, 213-221.

68. **Edwards W.B.**, Taylor D., Rudolphi T.J., Gillette J.C., & Derrick T.R. (2009). Effects of stride length and running mileage on a probabilistic stress fracture model. *Medicine and Science in Sports and Exercise,* 41, 2177-2184.

69. Meardon S.A.**, Edwards W.B.**, Ward E.D. & Derrick T.R. (2009). Effects of custom and semi-custom foot orthotics on 2nd metatarsal bone strain during dynamic gait simulation. *Foot and Ankle International,* 30, 998-1004.

70. **Edwards W.B.**, Ward E.D., Meardon S.A., and Derrick T.R. (2009). The use of external transducers for estimating bone strain at the distal tibia during impact activity. *Journal of Biomechanical Engineering,* 131, 051009-(1-6).

71. Escamilla R.F., Zheng N., Imamura R., MacLeod T.D., **Edwards W.B.**, Hreljac A., Fleisig G.S., Wilk K.E., Moorman C.T., and Andrew J.R. (2009). Cruciate ligament force during the wall squat and the one-leg squat. *Medicine and Science in Sports and Exercise,* 41, 408-417.

72. Escamilla R.F., Zheng N., MacLeod T.D., **Edwards W.B.**, Imamura R., Hreljac A., Fleisig G.S., Wilk K.E., Moorman C.T., and Andrews J.R. (2009). Patellofemoral joint force and stress during the wall squat and one-leg squat. *Medicine and Science in Sports and Exercise,* 41, 878-888.

73. **Edwards W.B.**, Gillette J., Thomas J. and Derrick T.R. (2008). Internal femoral forces and moments during running: Implications for stress fracture development. *Clinical Biomechanics,* 23, 1269-1278.

74. Escamilla R.F., Zheng N., MacLeod T.D., **Edwards W.B.**, Hreljac A., Fleisig G.S., Wilk K.E., Moorman C.T., and Imamura R. (2008). Patellofemoral joint force and stress between a short and long step forward lunge. *Journal of Orthopaedic and Sports Physical Therapy,* 38, 681-690.

75. Escamilla R.F., Zheng N., MacLeod T.D., **Edwards W.B.**, Hreljac A., Fleisig G.S., Wilk K.E., Moorman C.T., and Imamura R. (2008). Patellofemoral compressive force and stress during the forward and side lunge with and without stride. *Clinical Biomechanics,* 23, 1026-1037.

76. Hreljac A., Imamura R., Escamilla R.F., **Edwards W.B.**, and MacLeod T. (2008). The relationship between joint kinetic factors and gait transition speed during human locomotion. *Journal of Applied Biomechanics,* 24, 149-157.

77. Hreljac A., Imamura R., Escamilla R.F., and **Edwards W.B.** (2007). When does a gait transition occur during human locomotion? *Journal of Sports Science and Medicine*, 6, 36-43.

78. Hreljac A., Imamura R., Escamilla R.F., and **Edwards W.B.** (2007). Effects of changing protocol, grade, and direction on the preferred gait transition speed during human locomotion. *Gait and Posture,* 25, 419-424.

79. Imamura R., Hreljac A., Escamilla R.F., and **Edwards W.B.** (2006). A three-dimensional analysis of the center of mass for three different judo throwing techniques. *Journal of Sports Science and Medicine,* 5, CSSI, 122-131.

International and National Conference Presentations/Published Abstracts

1. **Edwards W.B.**, Haider I.T., Sawatsky A., Page R. (September, 2020). Effects of high-dose bisphosphonate therapy on the fatigue-life of whole-bone and bone tissue. *Proceedings of the American Society of Bone and Mineral Research Annual Meeting,* Virtual Event.
2. Haider I.T., Kostenuik P., Boyd S.K., **Edwards W.B.** (September, 2020). Effects of denosumab, alendronate, or denosumab after alendronate on humeral bone mineral density and finite element predicted strength in ovariectomized cynomolgus monkeys. *Proceedings of the American Society of Bone and Mineral Research Annual Meeting,* Virtual Event.
3. Haider I.T., Simonian N., Barroso J., **Edwards W.B.**, Schnitzer T.J. (September, 2020). Effects of zoledronic acid and ambulation on hip bone mineral density after acute spinal cord injury: year 1 of a randomized controlled trial. *Proceedings of the American Society of Bone and Mineral Research Annual Meeting,* Virtual Event.
4. Mazur C., **Edwards W.B.**, Haider I.T., Fang Y., Morse L., Schnitzer T.J., Troy K.L. (September, 2020). Sex-specific differences in bone mass are maintained following spinal cord injury. *Proceedings of the American Society of Bone and Mineral Research Annual Meeting,* Virtual Event.
5. Page R., Lee M., Haider I.T., **Edwards W.B.** (June, 2020). Effects of high-dose bisphosphonate therapy on the fatigue-life of whole rabbit-tibiae. *Proceedings of the Canadian Orthopaedic Association and Canadian Orthopaedic Research Society (COA/CORS) 2020 Annual Meeting,* Virtual Event.
6. Benson L.C., Owoeye O.B.A, Carlyn Stilling C., **Edwards W.B.**, Emery C.A. (May, 2020). Modeling tendon damage from athlete workload may be relevant for overuse injuries. *Proceedings of the Canadian Academy of Sport and Exercise Medicine (CASEM-AQMS) Sport Medicine Conference,* Banff, Alberta.
7. Benson L.C., Owoeye O.B.A, Carlyn Stilling C., **Edwards W.B.**, Emery C.A. (March, 2020). Workload weighted for tissue damage results in higher acute:chronic workload ratio for injured vs. uninjured athletes. *Proceedings of the IOC World Conference on Prevention of Injury & Illness in Sport,* Monaco.
8. Masson A.O., Corpuz J.M., Compuz K., Besler B.A., **Edwards W.B.**, Krawetz R.J. (November, 2019). A novel non-traumatic chondrocyte depletion model demonstrates that while articular cartilage is capable of maintaining tissue integrity post-insult, it is incapable of regeneration. *Proceedings of the Till & McCulloch Meetings, Montreal, Canada.*
9. **Edwards W.B.,** Loundagin L.L., & Haider I.T. (September, 2019). Fatigue life variation in secondary osteonal bone is primarily determined by vascular canal diameter rather than generalized porosity. *Proceedings of the American Society of Bone and Mineral Research Annual Meeting,* Orlando, Florida.
10. Loundagin L.L., Haider I.T., & **Edwards W.B.** (July, 2019). Effects of stress concentrations on the fatigue life of bovine cortical bone: finite element predicted peak stress and stressed volume. *Proceedings of the 27th Congress of the International Society of Biomechanics,* Calgary, Canada.

11. Haider I.T., Simonian N., Schnitzer T.J., & **Edwards W.B.** (July, 2019). Finite element predicted fracture strength at the distal femur and proximal tibia under biaxial loading. *Proceedings of the 27th Congress of the International Society of Biomechanics,* Calgary, Canada.
12. Bruce O.L., Sealine B.J., Derrick T.R., & **Edwards, W.B.** (July, 2019). Data-reduction method and surface effects on accelerometer-based estimates of cumulative damage. *Proceedings of the 27th Congress of the International Society of Biomechanics,* Calgary, Canada.
13. Khassetarash A., Vernillo G., Baggaley M., Horvais N., Millet G., & **Edwards W.B.** (July, 2019). Lower extremity joint quasi-stiffness in graded running. *Proceedings of the 27th Congress of the International Society of Biomechanics,* Calgary, Canada.
14. Esposito M., Baggaley M., Xu C., Unnikrishnan G., Reifman J., & **Edwards W.B.** (July, 2019). Effects of load carriage on biomechanical variables associated with tibial stress fractures in running. *Proceedings of the 27th Congress of the International Society of Biomechanics,* Calgary, Canada.
15. Baggaley M., Vernillo G., Horvais N., Millet G., & **Edwards W.B.** (July, 2019). Maximizing caloric expenditure and minimizing patellofemoral joint loading during running. *Proceedings of the 27th Congress of the International Society of Biomechanics,* Calgary, Canada.
16. Firminger C.R., Cigoja S., Asmussen M.J., Fletcher J.R., Nigg B.M., & **Edwards W.B.** (July, 2019). Effect of midsole bending stiffness on Achilles tendon strain during countermovement jumps. *Proceedings of the 27th Congress of the International Society of Biomechanics,* Calgary, Canada.
17. Cigoja S., Asmussen M.J., Firminger C.R., Fletcher J.R., **Edwards W.B.**, & Nigg B.M. (July, 2019). The energy return properties of the longitudinal arch in jumping. *Proceedings of the 27th Congress of the International Society of Biomechanics.* Calgary, Canada.
18. Firminger C.R., Cigoja S., Asmussen M.J., Fletcher J.R., Nigg B.M., & **Edwards W.B.** (July, 2019). Effect of longitudinal bending stiffness and running speed on a probabilistic Achilles tendinopathy model. *Proceedings of the 14th Biennial Footwear Biomechanics Symposium,* Kananaskis, Canada.
19. Cigoja S., Firminger C.R., Asmussen M.J., Fletcher J.R., **Edwards W.B.**, & Nigg B.M. (July, 2019). Effects of midsole bending stiffness on arch deformation of the human foot during running. *Proceedings of the 14th Biennial Footwear Biomechanics Symposium,* Kananaskis, Canada.
20. Asmussen M.J., Firminger C.R., Cigoja S., Fletcher J.R., **Edwards W.B.**, & Nigg B.M. Insole stiffness and energetic cost: a musculoskeletal modelling approach. (July, 2019). *Proceedings of the 14th Biennial Footwear Biomechanics Symposium,* Kananaskis, Canada.
21. Masson A.O., Corpuz J.M., **Edwards W.B.**, Krawetz R.J. (May, 2019) The Effect of chondrocyte depletion on the structural and functional properties of murine articular cartilage. *Proceedings of the 2019 OARSI World Congress on Osteoarthritis, Toronto, Canada.* Published in Osteoarthritis and Cartilage, 27, Supplement 1, S80.

22. Loundagin L.L., & **Edwards W.B.** (February, 2019). Effect of peak stress and stressed volume on the fatigue life of bovine cortical bone. *Proceedings of the 22nd International Workshop on Quantitative Musculoskeletal Imaging*, Lake Louise, Canada.
23. Loundagin L.L., Cooper D.M.L., & **Edwards W.B.** (February, 2019). Relationship between osteocyte lacunar morphology and the fatigue life of human cortical bone. *Proceedings of the 22nd International Workshop on Quantitative Musculoskeletal Imaging*, Lake Louise, Canada.
24. Haider I., Kostenuik P., & Edwards W.B. (February, 2019). Regional discrepancies in proximal femur and femoral shaft strain following two years of simulated zolendronic acid. *Proceedings of the 22nd International Workshop on Quantitative Musculoskeletal Imaging*, Lake Louise, Canada.
25. Masson A.O., **Edwards W.B.**, Underhill T.M., Krawetz R.J. (November, 2018) Investigating the role of in vivo cell cycle activation within mesenchymal stem cells in the regenerative potential of articular cartilage after injury. *Proceedings of the 2018 Till & McCulloch Meetings*, Ottawa, Canada.
26. Loundagin L.L., Cooper D., & **Edwards W.B.** (September, 2018). Influence of age, sex, and anatomical location on human cortical bone microarchitecture: a synchrotron radiation micro-CT study. *Proceedings of the American Society of Bone and Mineral Research Annual Meeting*, Montreal, Quebec.
27. Haider I., Lobos S., Simonian N., Schnitzer T.J., & **Edwards W.B.** (September, 2018). Bone fragility after spinal cord injury: reductions in stiffness and bone mineral at the distal femur and proximal tibia as a function of time. *Proceedings of the American Society of Bone and Mineral Research Annual Meeting*, Montreal, Quebec.
28. Haider I., & **Edwards W.B.** (July, 2018). Finite element models of the tibia with realistic boundary constraints predict bending deformations consistent with in-vivo measurements. Proceedings of the 8th World Congress of Biomechanics, Dublin, Ireland.
29. Haider I., Schneider P., Michalski A., & **Edwards W.B.** (July, 2018). Influence of geometry on proximal femoral shaft strains: implications for atypical femoral fracture. Proceedings of the 8th World Congress of Biomechanics, Dublin, Ireland.
30. Loundagin L.L., Cooper D., & **Edwards W.B.** (July, 2018). Volume-dependent variation in human cortical bone microarchitecture using synchrotron radiation microCT. Proceedings of the 8th World Congress of Biomechanics, Dublin, Ireland.
31. Loundagin L., Schmidt T., & **Edwards W.B.** (July, 2018). Median canal diameter better predicts the fatigue life of bovine cortical bone than porosity. Proceedings of the 8th World Congress of Biomechanics, Dublin, Ireland.
32. Baggaley M., Vernillo G., Horvais N., Millet G., & **Edwards W.B.** (July, 2018). The effect of grade on lower extremity joint contact forces during running. Proceedings of the 8th World Congress of Biomechanics, Dublin, Ireland.
33. Firminger C, Bruce O., Wannop J., Stefanyshyn D., & **Edwards W.B.** (July, 2018). Surface construction alters patellar tendon strains in jumping. Proceedings of the 8th World Congress of Biomechanics, Dublin, Ireland.

34. Bruce O., Firminger C, Wannop J., Stefanyshyn D., & **Edwards W.B.** (July, 2018). Patellar tendon stiffness in male adolescent basketball players. Proceedings of the 8th World Congress of Biomechanics, Dublin, Ireland.

35. Masson A.O., Underhill T.M., **Edwards W.B.**, & Krawetz R.J. (April, 2018). Investigating the role of in vivo cell cycle activation within mesenchymal stem cells in the regenerative potential of articular cartilage after injury. *Proceedings of the 2018 OARSI World Congress on Osteoarthritis, Liverpool, United Kingdom.* Published in Osteoarthritis and Cartilage, 26, Supplement 1, S38.

36. Simonian S., **Edwards W.B.**, Gregory E., Gordan K., Parachuri R., Haider I., Troy K., & Schnitzer T.J. (September, 2017). The effects of teriparatide, vibration and the combination on bone mass, architecture and metabolism in chronic spinal cord injury. *Proceedings of the American Society of Bone and Mineral Research Annual Meeting*, Denver, Colorado.

37. Loundagin L.L., Schmidt T.A., & **Edwards W.B.** (July, 2017). Effects of impact and active phase of running on mechanical fatigue of bone. *Proceedings of the 26th Congress of the International Society of Biomechanics*, Brisbane, Australia.

38. Firminger C.R., Fung A., Loundagin L.L., & **Edwards W.B.** (July, 2017). Contributions of metatarsal angle and metatarsal head force to increased strains observed in minimalist shoe running. *Proceedings of the 26th Congress of the International Society of Biomechanics*, Brisbane, Australia.

39. Firminger C.R., & **Edwards W.B.** (July, 2017). Effect of minimalist footwear and stride length reduction on the probability of metatarsal stress fracture: a weibull analysis with bone repair. *Proceedings of the 13th Footwear Biomechanics Symposium*, Gold Coast, Australia.

40. Baggaley M., & **Edwards W.B.** (May, 2017). Effect of running speed on Achilles tendon injury potential: use of a weighted impulse measure. *Proceedings of the American College of Sports Medicine 64th Annual Meeting*, Denver, Colorado.

41. Michalski A.S., **Edwards W.B.**, & Boyd S.K. (September, 2016). The impact of QCT reconstruction kernel on bone mineral density and finite element estimated bone strength. *Proceedings of the American Society of Bone and Mineral Research Annual Meeting*, Atlanta, Georgia.

42. **Edwards W.B.** (August, 2016). A weighted-impulse measure for the estimation of overuse injury potential based on cumulative damage theory. *Proceedings of the American Society of Biomechanics 40th Annual Meeting*, Raleigh, North Carolina.

43. **Edwards W.B.**, Wannop J.W., & Stefanyshyn D.J. (August, 2016). Prediction of patellar tendinopathy using Weibull analysis. *Proceedings of the American Society of Biomechanics 40th Annual Meeting*, Raleigh, North Carolina.

44. Loundagin L.L., Schmidt T.A., & **Edwards W.B.** (August, 2016). Is the mechanical fatigue of bone influenced more by the impact or active phase of running? *Proceedings of the American Society of Biomechanics 40th Annual Meeting*, Raleigh, North Carolina.

45. Gruber A.J., **Edwards W.B.**, & Miller R.H. (August, 2016). Characteristics of the extracted impact component distinguish between prospective running injury and controls. *Proceedings of the American Society of Biomechanics 40th Annual Meeting*, Raleigh, North Carolina.

46. Firminger C.R., & **Edwards W.B.** (May, 2016). Kinetic differences associated with minimalist shoe and reduced stride length running. *Proceedings of the American College of Sports Medicine 63rd Annual Meeting*, Boston, Massachusetts.

47. Michalski A.S., Edwards W.B., & Boyd S.K. (May, 2016). QCT reconstruction kernel has important quantitative effects on finite element estimated bone strength. *Proceedings of the 39th Canadian Medical and Biological Engineering Conference*, Calgary, Alberta.

48. Loundagin L.L., Schmidt T.A., & **Edwards W.B.** (March, 2016). The influence of loading frequency on the compressive fatigue behavior of bovine cortical bone. *Proceedings of the Orthopaedic Research Society 62nd Annual Meeting*, Orlando, Florida.

49. Pangka A., Giorgini S., Hanley D.A., Boyd S.K., & **Edwards W.B.** (March, 2016). Functional measures of muscle loading and its relation to bone stiffness and strength assessed by HR-pQCT in Postmenopausal Women. *Proceedings of the Orthopaedic Research Society 62nd Annual Meeting*, Orlando, Florida.

50. **Edwards W.B.**, Miller R.H., & Derrick T.R. (March, 2016). Femoral strain during walking predicted with muscle forces from forward dynamics simulation versus inverse-dynamics-based static optimization. *Proceedings of the Orthopaedic Research Society 62nd Annual Meeting*, Orlando, Florida.

51. Gruber A.H., **Edwards W.B.,** & Hamill J. (August, 2015). Frequency content of the vertical impact peak during rearfoot and forefoot running. *Proceedings of the American Society of Biomechanics 39th Annual Meeting*, Columbus, Ohio.

52. Budihal D., & **Edwards W.B.** (July, 2015). Theoretical influence of age, running speed, and running distance on the probability of second metatarsal stress fracture. *Proceedings of the 25th Congress of the International Society of Biomechanics*, Glasgow, Scotland.

53. Firminger C.R., Trudeau M.B., Nigg B.M, & **Edwards W.B.** (July, 2015). The influence of minimalist footwear on metatarsal bone strains during running. *Proceedings of the 25th Congress of the International Society of Biomechanics*, Glasgow, Scotland.

54. Hoerzer S., Trudeau M.B., **Edwards W.B.**, & Nigg B.M. (July, 2015). How reliable are subjective footwear comfort assessments? *Footwear Science*, 7:sup1, S106-S107.

55. **Edwards W.B.**, Simonian N., & Schnitzer T.J. (May, 2015). Bone mineral density assessed by QCT, but not DXA, discriminates SCI patients with prevalent fragility fractures. *Proceedings of the 4th Joint Meeting of the ISCoS and ASIA*, Montreal, Quebec.

56. Gruber A.H., **Edwards W.B.**, Hamill J., Derrick T.R., & Boyer K.A. (May, 2015) Ground reaction forces in rearfoot and forefoot running assessed by a continuous wavelet transform. *Proceedings of the American College of Sports Medicine 62nd Annual Meeting*, San Diego, California.

57. **Edwards W.B.**, Simonian N., Troy K.L., & Schnitzer T.J. (September, 2014). Discriminants of prevalent fragility fractures in chronic spinal cord injury. *Proceedings of the American Society of Bone and Mineral Research Annual Meeting,* Houston, Texas.

58. Butler T., Schnitzer T.J., **Edwards W.B.**, & Troy K.L. (September, 2014). Increased marrow adipose tissue following spinal cord injury. *Proceedings of the American Society of Bone and Mineral Research Annual Meeting*, Houston, Texas.

59. **Edwards W.B.**, Simonian N., Troy K.L., & Schnitzer T.J. (August, 2014). Reduction in proximal tibia compartmental bone mineral as a function of time since spinal cord injury. *Proceedings of the International Bone & Mineral Society's (IBMS) 43rd International Sun Valley Workshop: Musculoskeletal Biology*, Sun Valley, Idaho.

60. **Edwards W.B.**, Schnitzer T.J., & Troy K.L. (July, 2014). Reduction in proximal femoral strength in patients with acute spinal cord injury. *Proceedings of the 7th World Congress of Biomechanics*, Boston, Massachusetts.

61. Troy K.L., Bhatia V.A., **Edwards W.B.,** & Johnson J. E. (July, 2014). Individual variations in bone mechanical strain environment: implications for osteogenic exercise. *Proceedings of the 7th World Congress of Biomechanics*, Boston, Massachusetts.

62. Prasad A., **Edwards W.B.**, Marks J., Troy K. L., Schnitzer T. J. (May, 2014). Correlation of DXA and QCT imaging at the knee in adults with spinal cord injury. *Proceedings of the ASIA 40th Annual Scientific Meeting*, San Antonio, Texas.

63. **Edwards W.B.**, Schnitzer T.J., & Troy K.L. (October, 2013). Changes in fracture strength as a function of time since spinal cord injury. *Proceedings of the American Society of Bone and Mineral Research Annual Meeting*, Baltimore, Maryland.

64. Prasad A., **Edwards W.B.**, Hermann K., Barkema D., Simonian N., Yeasted R., Troy K.L., & Schnitzer T.J. (October, 2013). DXA vs QCT imaging of the knee in people with spinal cord injury. *Proceedings of the American Society of Bone and Mineral Research Annual Meeting,* Baltimore, Maryland.

65. **Edwards W.B.**, Schnitzer T.J., & Troy K.L. (September, 2013). The mechanical consequence of actual bone loss and simulated bone recovery in acute spinal cord injury. *Proceedings of the American Society of Biomechanics 37th Annual Meeting*, Omaha, Nebraska.

66. Bhatia V., **Edwards W.B.**, & Troy K.L. (September, 2013). Finite element prediction of periosteal strain at the human distal radius during a targeted loading task. *Proceedings of the American Society of Biomechanics 37th Annual Meeting*, Omaha, Nebraska.

67. Miller R.H., **Edwards W.B.**, Morton A.M., & Deluzio K.J. (May, 2013). Why don't runners get knee osteoarthritis? Peak and cumulative joint loads in human locomotion. *Proceedings of the American College of Sports Medicine 60th Annual Meeting*, Indianapolis, Indiana.

68. **Edwards W.B.**, Troy K.L., & Schnitzer T.J. (May, 2013). Reductions in proximal tibia fracture strength in acute spinal cord injury. *Topics in Spinal Cord Injury Medicine*, 19 - ASIA 39th Annual Scientific Meeting, 15.

69. **Edwards W.B.**, Schnitzer T.J., & Troy K.L. (January, 2013). Computed tomography based finite element models can accurately predict stiffness and strength of proximal tibae loaded in torsion. *Proceedings of the Orthopaedic Research Society 59th Annual Meeting,* San Antonio, Texas.

70. Bhatia V., **Edwards W.B.**, & Troy K.L. (January, 2013). Predicting bone adaptation at the human distal radius using cadaveric specimens and the Daily Strain Stimulus theory. *Proceedings of the Orthopaedic Research Society 59th Annual Meeting,* San Antonio, Texas.

71. **Edwards W.B.**, Schnitzer T.J., & Troy K.L. (October, 2012). Bone mineral loss at the hip in acute spinal cord injury. *Proceedings of the American Society of Bone and Mineral Research Annual Meeting,* Minneapolis, Minnesota.

72. Troy K.L., Bhatia V.A., & **Edwards W.B.** (October, 2012). Muscle volume does not affect the osteogenic response to compressive loading in the distal radius of young women. *Proceedings of the American Society of Bone and Mineral Research Annual Meeting,* Minneapolis, Minnesota.

73. **Edwards W.B.**, & Troy K.L (August, 2012). DXA derived measures of bone mineral can reliably predict mechanical behavior of proximal tibias loaded in torsion. *Proceedings of the American Society of Biomechanics 36th Annual Meeting,* Gainesville, Florida.

74. **Edwards W.B.**, & Troy K.L (August, 2012). A linear actuated torsional device to replicate clinically relevant spiral fractures in long bone. *Proceedings of the American Society of Biomechanics 36th Annual Meeting,* Gainesville, Florida.

75. Troy K.L., Bhatia V.A., & **Edwards W.B.** (August, 2012). Compressive loading of the distal radius improves bone structure in young women. *Proceedings of the American Society of Biomechanics 36th Annual Meeting,* Gainesville, Florida.

76. Bhatia V.A., **Edwards W.B.**, & Troy K.L. (August, 2012). Repeatability of image registration and segmentation procedures for CT scans of human distal radius. *Proceedings of the American Society of Biomechanics 36th Annual Meeting,* Gainesville, Florida.

77. Derrick T.R., **Edwards W.B.**, & Rooney B.D. (August, 2012). Tibial stresses in habitual and converted forefoot and rearfoot strike runners. *Proceedings of the American Society of Biomechanics 36th Annual Meeting,* Gainesville, Florida.

78. **Edwards W.B.**, Barkema D.D., Schnitzer T.J., & Troy K.L. (February, 2012). The mechanical consequence of acute bone loss following spinal cord injury. *Proceedings of the Orthopaedic Research Society 58th Annual Meeting,* San Francisco, California.

79. Bhatia V.A., **Edwards W.B.**, & Troy K.L. (February, 2012). Effect of image resolution on the accuracy of trabecular morphology and the convergence behavior of micro-CT finite element models of mouse bone. *Proceedings of the Orthopaedic Research Society 58th Annual Meeting*, San Francisco, California.

80. Troy K.L., & **Edwards W.B.** (September, 2011). Translating the strain stimulus equation from animals to humans. *Proceedings of the American Society of Bone and Mineral Research Annual Meeting,* San Diego, California.

81. **Edwards W.B.**, & Troy K.L. (August, 2011). Short term mechanical loading increases trabecular bone mineral content and moments of inertia in the radius of young women. *Proceedings of the American Society of Biomechanics 35th Annual Meeting*, Long Beach, California.

82. **Edwards W.B.**, & Troy K.L. (January, 2011). Determinants of finite element predicted fracture strength of the distal radius. *Proceedings of the 19th Annual Symposium on Computational Methods in Orthopaedic Biomechanics (pre-ORS)*, Long Beach, California.

83. **Edwards W.B.**, & Troy K.L. (January, 2011). Finite element prediction of distal radius fracture strength: Validation and application to a short-term mechanical loading intervention. *Proceedings of the Orthopaedic Research Society 57th Annual Meeting*, Long Beach, California.

84. Ward E.D., **Edwards W.B.**, Cocheba J.R., & Derrick T.R. (September, 2010). Comparison of joint pressure changes with adult acquired flatfoot and talonavicular joint fusion for correction of adult acquired flatfoot. *Proceedings of the 2nd International Foot and Ankle Biomechanics Conference*, Seattle, Washington.

85. Derrick T.R., Ward E.D., Cocheba J.R., **Edwards W.B.**, & Hageman E.R. (September, 2010). Kinematics of adult acquired flatfoot and correction of adult acquired flatfoot with talonavicular joint fusion. *Proceedings of the 2nd International Foot and Ankle Biomechanics Conference*, Seattle, Washington.

86. **Edwards W.B.**, & Troy K.L. (August, 2010). Changes in cross sectional stress at the distal radius following short term mechanical loading. *Proceedings of the American Society of Biomechanics 34th Annual Meeting*, Providence, Rhode Island.

87. **Edwards W.B.**, & Troy K.L. (August, 2010). Finite element prediction of surface strain and failure load at the distal radius using simplified boundary conditions. *Proceedings of the American Society of Biomechanics 34th Annual Meeting*, Providence, Rhode Island.

88. Troy K.L., & **Edwards W.B.** (August, 2010). Relationships between dual energy x-ray absorptiometry (DXA) and computed tomography (CT) measures of bone and their ability to predict fracture load. *Proceedings of the American Society of Biomechanics 34th Annual Meeting*, Providence, Rhode Island.

89. **Edwards W.B.**, & Derrick T.R. (March 2010). The influence of running speed on hip joint contact forces. *Proceedings of the Orthopaedic Research Society 56th Annual Meeting*, New Orleans, Louisiana.

90. Troy K.L., & **Edwards W.B.** (March 2010). A human model of bone adaptation: effects of short-term mechanical loading. *Proceedings of the Orthopaedic Research Society 56th Annual Meeting*, New Orleans, Louisiana.

91. **Edwards W.B.**, Taylor D., Rudolphi T.J., Gillette J.C., & Derrick T.R. (August 2009). The probability for tibial stress fracture increases with running speed despite a reduction in the number of loading cycles. *Proceedings of the American Society of Biomechanics 33rd Annual Meeting*, University Park, Pennsylvania.

92. De Witt J.K., **Edwards W.B.**, Perusek G.P., Lewandowski B.E., & Samorezov S. (August 2009). Kinematic and EMG comparison of gait in normal and microgravity. *Proceedings of the American Society of Biomechanics 33rd Annual Meeting,* University Park, Pennsylvania.

93. Gillette J., Stevermer C. Miller R., **Edwards W.B.**, & Schwab C. (August 2009). Lower extremity joint moments during carrying tasks in children. *Proceedings of the American Society of Biomechanics 33rd Annual Meeting,* University Park, Pennsylvania.

94. **Edwards W.B.**, Rudolphi T.J., Gillette J.C., & Derrick T.R. (May 2009). Effects of reducing stride length and shoe stiffness on the probability of tibial stress fracture. *Medicine & Science in Sports & Exercise,* 41(5), S3.

95. Barkema D.D., **Edwards W.B.**, & Derrick T.R. (May 2009). Effects of drop landing height on lower extremity joint contact forces. *Medicine & Science in Sports & Exercise*, 41(5), S412.

96. Hageman E.R., **Edwards W.B.**, & Derrick T.R. (May 2009). Simulated reduction in hip abductor muscle forces increase femoral neck stress during running. *Medicine & Science in Sports & Exercise*, 41(5), S413.

97. Escamilla R.F., Zheng N., MacLeod T.D., Imamura R., **Edwards W.B.**, Hreljac A., Fleisig G.S., Wilk K.E., Moorman C.T., & Andrews J.R. (May 2009). Cruciate ligament tensile forces during lunging with varying techniques. *Medicine & Science in Sports & Exercise*, 41(5), S19.

98. Johannsen, N.M., **Edwards, W.B.**, Church, T.S., Blair, S.N., & Earnest, C.P. (April 2009). Effect of exercise dose on fat oxidation capacity in postmenopausal women. *Proceedings of the Experimental Biology Annual Meeting,* New Orleans, Louisiana.

99. **Edwards W.B.**, Ward E.D., & Derrick T.R. (September 2008). Foot joint pressures during dynamic gait simulation. *Journal of Foot and Ankle Research,* 1(Suppl 1): O21.

100. **Edwards W.B.,** Sealine B.J., Miller R.H., Gillette J.C., & Derrick T.R. (August 2008). Static optimization of muscle forces during drop landings: a comparison of cost functions. *Proceedings of the North American Congress on Biomechanics,* Ann Arbor, Michigan.

101. **Edwards W.B.,** Gillette J.C., Thomas J.M., & Derrick T.R. (August 2008). Internal femoral forces and moments during running: implications for stress fracture development. *Proceedings of the North American Congress on Biomechanics,* Ann Arbor, Michigan.

102. Sorensen C.J., **Edwards W.B.,** Sealine B.J., Gillette J.C., & Derrick, T.R. (August 2008). Lower-back compressive forces during drop landings. *Proceedings of the North American Congress on Biomechanics,* Ann Arbor, Michigan.

103. De Witt J.K., Bently J. R., **Edwards W.B.**, Perusek G.P., & Samorezov S. (August 2008). Locomotion posture in actual and simulated microgravity and normal gravity. *Proceedings of the North American Congress on Biomechanics,* Ann Arbor, Michigan.

104. **Edwards W.B.**, & Derrick T.R. (July 2008). The influence of effective mass on impact force and acceleration. *Proceedings of the International Society of Biomechanics in Sport 26th Annual Meeting,* Seoul, Korea.

105.Escamilla R.F., Zheng N., Imamura R., MacLeod T.D., **Edwards W.B.**, Hreljac A., Fleisig G.S., Wilk K.E., Moorman C.T. (May 2008). Patellofemoral compressive force and stress during the forward and side lunge with and without a stride. *Medicine & Science in Sports & Exercise*, 40(5), S79.

106.**Edwards W.B.**, Thomas J.M., & Derrick T.R. (August 2007). 3D joint contact forces at the hip, knee, and ankle during running at different stride lengths. *Proceedings of the American Society of Biomechanics 31st Annual Meeting*, Stanford, California.

107.**Edwards W.B.**, Meardon S.A., Ward E.D., & Derrick T.R. (August 2007). Anisotropic stress analysis of the second metatarsal during the stance phase of gait. *Proceedings of the American Society of Biomechanics 31st Annual Meeting*, Stanford, California.

108.Meardon S.A., **Edwards W.B.**, & Derrick T.R. (August 2007). Kinematic correlates of the free moment and combined loads during running. *Proceedings of the American Society of Biomechanics 31st Annual Meeting*, Stanford, California.

109.Escamilla R.F., Zheng N., Hreljac A., Imamura R., MacLeod T.D., **Edwards W.B.**, Fleisig G.S., Wilk K.E. (August 2007). Cruciate ligament force between the forward lunge long and short with and without a stride. *Proceedings of the American Society of Biomechanics 31st Annual Meeting*, Stanford, California.

110.Escamilla R.F., Zheng N., Hreljac A., Imamura R., MacLeod T.D., **Edwards W.B.**, Fleisig G.S., Wilk K.E. (August 2007). Cruciate ligament force during the wall squat and one-leg squat. *Proceedings of the American Society of Biomechanics 31st Annual Meeting*, Stanford, California.

111.**Edwards W.B.**, DeWitt J.K., Scott-Pandorf M.M., & Hagan R.D. (May 2007). Relationship between speed and peak ground reaction force during locomotion in lunar gravity. *Medicine & Science in Sports & Exercise*, 39(5), S150.

112.Scott-Pandorf M.M., DeWitt J.K., **Edwards W.B.**, & Hagan R.D. (May 2007). Froude number does not predict preferred transition speed in lunar gravity. *Medicine & Science in Sports & Exercise*, 39(5), S260.

113.Julius B.R., **Edwards W.B.**, Meardon S.A., Johannsen N., Macaluso F., & Derrick T.R. (May 2007). Evidence of bone turnover following an acute impact bout. *Medicine & Science in Sports & Exercise*, 39(5), S65.

114.Sealine B.J., Meardon S.A., **Edwards W.B.**, & Derrick T.R. (May 2007). Midsole cushioning during running on various surfaces. *Medicine & Science in Sports & Exercise*, 39(5), S154-S156.

115.Meardon S.A., **Edwards W.B.**, Brubaker M.L., Haberkorn A.E., & Derrick T.R. (May 2007). Determinants of peak tibial acceleration in running. *Medicine & Science in Sports & Exercise*, 39(5), S72.

116.Meardon S.A., Thomas J.M., **Edwards W.B.,** & Derrick T.R. (February, 2007). Gender differences in combined loading during running. *Presented at the Combined Sections Meeting*, Boston, Massachusetts.

117. **Edwards W.B.**, Meardon S., Ward E., & Derrick T.R. (September, 2006). The use of acceleration and external forces to estimate bone strain. *Proceedings of the American Society of Biomechanics 30th Annual Meeting,* Blacksburg, Virginia.

118. Escamilla R.F., Zheng N., Hreljac A., Imamura R., MacLeod T.D., **Edwards W.B.**, Fleisig G.S., Wilk K.E. (September, 2006). Patellofemoral forces and stresses during lunge exercises. *Proceedings of the American Society of Biomechanics 30th Annual Meeting,* Blacksburg, Virginia.

119. Escamilla R.F., Zheng N., Hreljac A., Imamura R., MacLeod T.D., **Edwards W.B.**, Fleisig G.S., Wilk K.E. (September, 2006). Patellofemoral forces and stresses during squat exercises. *Proceedings of the American Society of Biomechanics 30th Annual Meeting,* Blacksburg, Virginia.

120. **Edwards W.B.**, DeWitt J., Schaffner G., Hreljac A., & Hagan R.D. (May, 2006). Relationship between external load and ground reaction force parameters during running in weightlessness. *Medicine & Science in Sports & Exercise, 38*(5), S391.

121. Nsiah B., **Edwards W.B.**, Meardon S., Ward E., & Derrick T.R. (May, 2006). Spectral analysis of impact accelerations using bone versus surface mounted accelerometers. *Medicine & Science in Sports & Exercise, 38*(5), S267.

122. Norcross J., DeWitt J., Lee S.M.C., McCleary F., **Edwards W.B.**, & Hagan R.D. (May, 2006). Ground reaction forces and gait parameters during motorized and non-motorized treadmill walking and running on the International Space Station treadmill. *Medicine & Science in Sports & Exercise, 38*(5), S122.

123. Escamilla R.F., Bonnaci L., Burnham T., Busch J., D'Anna K., **Edwards W.B.**, Eliopoulos P., MacLeod T., Mowbray R., Imamura R.T., and Hreljac A. (May, 2006). A Biomechanical Analysis of Squatting and Lunging Type Exercises. *Medicine & Science in Sports & Exercise, 38*(5), S264.

124. Lewis C., Hreljac A., **Edwards W.B.**, Summers S., Vojkufka J. (May, 2006). Motion analysis of e-3 Fitness Grips used when running. *Medicine & Science in Sports & Exercise, 38*(5), S394-S395.

125. Hreljac A., Imamura R., Escamilla R., **Edwards W.B.**, & Furch T. (August, 2005). Kinetic factors influencing the gait transition speed during human locomotion. *Proceedings of the International Society of Biomechanics 20th Annual Meeting and the American Society of Biomechanics 29th Annual Meeting,* Cleveland, Ohio.

126. Hreljac A., Imamura R., **Edwards W.B.**, & Escamilla R. (September, 2004). Effects of changing protocol, grade, and direction on the preferred gait transition speed during human locomotion. *Proceedings of the American Society of Biomechanics 28th Annual Meeting,* Portland, Oregon.

127. Peifer J., **Edwards W.B.**, Sept S., Quintana R., & Parker D.L. (May, 2004). Differences in Pmax and Tmax using different GXT protocols, alters time needed to elicit VO2max. *Medicine & Science in Sports & Exercise, 36*(5), S116.

128. Koski A., Peifer J., **Edwards W.B.**, Sept S., Quintana R., & Parker D.L. (May, 2004). Effect of different exercise protocols on: peak aerobic power, VO2max, and heart rate max. *Medicine & Science in Sports & Exercise, 36*(5), S115.

129. Hreljac A., Stergiou N., Imamura R., Casebolt J., Sison M., & **Edwards W.B.** (September, 2003). Ankle and knee joint kinetics during running and sprinting. *Proceedings of the American Society of Biomechanics 27th Annual Meeting*, Toledo, Ohio.

Regional Conference Presentations/Published Abstracts

1. Page R., Lee M., Haider I.T., **Edwards W.B.** (October, 2019) Effects of antiresorptive treatment on the fatigue life of whole rabbit-tibiae. *Proceedings of the 20th annual Alberta Biomedical Engineering Conference.* Banff, Alberta.
2. Masson A.O., Corpuz J.M., Corpuz K., Besler B.A., **Edwards W.B.**, Krawetz R.J. (October, 2019) A novel non-traumatic chondrocyte depletion model demonstrates that while articular cartilage is capable of maintaining tissue integrity post-insult, it is incapable of regeneration. *Proceedings of the 20th annual Alberta Biomedical Engineering Conference.* Banff, Alberta.
3. Corpuz K., Masson A.O., **Edwards W.B.**, Krawetz R.J. (October, 2019) A Novel Mouse Model of Intervertebral Disc Degeneration. *Proceedings of the 20th annual Alberta Biomedical Engineering Conference,* Banff, Alberta.
4. Loundagin L.L., Haider I., Doschak M., **Edwards W.B.** (October, 2018). Relationship between finite element predicted strain and fatigue life of rabbit tibiae. *Proceedings of the 19th annual Alberta Biomedical Engineering Conference,* Banff, Alberta.
5. Firminger C.R., Bruce O.L., Wannop J.W., Stefanyshyn D.J., **Edwards W.B.** (October, 2018). Evaluating the 'jumper's knee paradox' with probabilistic modeling. *Proceedings of the 19th annual Alberta Biomedical Engineering Conference,* Banff, Alberta.
6. Bruce O., **Edwards W.B.** (October, 2018). Data reduction analyses for accelerometer-based measures of damage accumulation. *Proceedings of the 19th annual Alberta Biomedical Engineering Conference,* Banff, Alberta.
7. Masson A.O., **Edwards W.B.**, Underhill T.M., Krawetz R.J. (October, 2018) Investigating the role of in vivo cell cycle activation within mesenchymal stem cells in the regenerative potential of articular cartilage after injury. *Proceedings of the 19th annual Alberta Biomedical Engineering Conference,* Banff, Alberta.
8. Loundagin L.L., Annette H.M., **Edwards W.B.** (November 2017). Mechanical fatigue of cortical bone in tension and compression: effects of microarchitecture. *Proceedings of the 18th Annual Alberta BME Conference*, Banff, Alberta.
9. Masson A.O., **Edwards W.B.**, Underhill T.M., Krawetz R.J. (November, 2017). Investigating the role of cell cycle activation in stem cells on cartilage regeneration in vivo. *Proceedings of the 18th Annual Alberta BME Conference*, Banff, Alberta.
10. Baggaley M., Vernillo G., Horvais N., Millet G.Y., **Edwards W.B.** (October 2016). Step length and energy absorption at the knee during running: effects of grade. *Proceedings of the 17th Annual Alberta BME Conference*, Banff, Alberta.

11. Loundagin L.L., Schmidt T.A., **Edwards W.B.** (October 2016). Compressive fatigue of bovine cortical bone: correlation between damage rate and fatigue life. *Proceedings of the 17th Annual Alberta BME Conference*, Banff, Alberta.
12. Firminger C.R., Rolian C., **Edwards W.B.** (October 2016). Minimalist footwear increases metatarsal strains during walking. *Proceedings of the 17th Annual Alberta BME Conference*, Banff, Alberta.
13. Fung A., Loundagin L.L., **Edwards W.B.** (October 2016). Cross-validation of FE-predicted metatarsal strains suggests an influence of age and vBMD on density-elasticity relationships. *Proceedings of the 17th Annual Alberta BME Conference*, Banff, Alberta.
14. Michalski A.S., Pauchard Y., **Edwards W.B.**, Boyd S.K. (October 2016). Impact of mesh element size on finite element analysis of hip fracture in a sideways fall. *Proceedings of the 17th Annual Alberta BME Conference*, Banff, Alberta.
15. Loundagin L.L., Schmidt T.A., **Edwards W.B.** (November 2015). The influence of loading duration and loading cycles on compressive fatigue failure of bovine cortical bone. *Proceedings of the 16th Annual Alberta BME Conference*, Banff, Alberta.
16. Pangka A., Giorgini S., Hanley D.A., Boyd S.A., **Edwards WB** (November 2015). Functional measures of muscle loading and strength and its relation to bone volume. *Proceedings of the 16th Annual Alberta BME Conference*, Banff, Alberta.
17. Fung A., Firminger C.R., Matthews I., **Edwards W.B.** (November 2015). Verification of mesh size and material property assignment for finite element models of the human second metatarsal bone. *Proceedings of the 16th Annual Alberta BME Conference*, Banff, Alberta.
18. Firminger C.R., Matthews I., **Edwards W.B.** (November 2015). The influence of shoe type and stride length on forefoot loading and foot strike angle during running. *Proceedings of the 16th Annual Alberta BME Conference*, Banff, Alberta.
19. Michalski A.S., **Edwards W.B.**, Boyd S.K. (November 2015). Effects of CT reconstruction convolution kernels on bone quality quantification. *Proceedings of the 16th Annual Alberta BME Conference*, Banff, Alberta.
20. Budihal D., **Edwards W.B.** (October 2014). The Influence of age, running speed, and running distance on the probability of second metatarsal stress fracture. *Proceedings of the 15th Annual Alberta BME Conference*, Banff, Alberta.
21. Fung A., **Edwards W.B.** (October 2014). An approach to examine the effect of taper angle and threading on periprosthetic bone remodeling from bone anchored amputation prostheses. *Proceedings of the 15th Annual Alberta BME Conference*, Banff, Alberta.
22. **Edwards W.B.**, Miller R.H. (August, 2014). An immediate bone remodeling response is necessary to prevent second metatarsal stress fractures in runners. *Proceedings of the International Calgary Running Symposium*, Calgary, Alberta.
23. Miller R.H., **Edwards W.B.**, Deluzio K.J. (August, 2014). Knee joint loading and energy expenditure when walking, running, or standing for the same amount of time. *Proceedings of the International Calgary Running Symposium*, Calgary, Alberta.

24. **Edwards W.B.**, Johannsen N., Macaluso F., Meardon S., Derrick T.R. (March, 2006). Effects of impact loading on acute bone adaptation. *Presented at the Midwest Graduate Students' Biomechanics Symposium*. Milwaukee, Wisconsin.
25. Escamilla R.F., Bonnaci L., Burnham T., Busch J., D'Anna K., **Edwards W.B.**, Eliopoulos, P., Furch, T., Hreljac, A., Imamura, R.T., Mowbray, R. (October, 2005). An electromyographic analysis of common lower extremity rehabilitation exercises. *Presented at the California Physical Therapy Association Annual Conference*, Ontario, California.
26. **Edwards W.B.**, DeWitt J., Schaffner G., Hreljac A., Hagan R.D. (October, 2004). A comparison of lower leg running kinematics between normal gravity and weightlessness. *Presented at the Southwest American College of Sports Medicine 25th Annual Meeting*, Las Vegas, Nevada.

Invited Lectures

1. Biomechanics of atypical femoral fracture. *Presented at the Bone Academy Mexico*, Puerto Vallarta, Mexico (March, 2019).
2. Biomecánica de la Fractura Atípica. *Presented at the Summit de Osteoporosis*, Puerto Vallarta, Mexico (March, 2019).
3. Mechanisms of Atypical Femoral Fracture. *Presented at the International Bone Academy*, Amsterdam, Netherlands (March, 2019).
4. Applied modeling of stress fractures in running. *Invited speaker for the Nike Human Locomotion Symposium at the 20th Biennial Meeting of the Canadian Society of Biomechanics*, Halifax, Nova Scotia (August, 2018).
5. Modeling overuse injury as a mechanical fatigue phenomenon. *Keynote speaker for the session entitled "Multiscale Biomechanics in sport and sports injuries" at the 8th World Congress of Biomechanics*, Dublin, Ireland (July 2018).
6. Predicting overuse injuries in sport: lessons from mechanical fatigue tests. *Presented at the McCaig Institute's Seminar Series*, McCaig Institute for Bone and Joint Health, University of Calgary (May, 2018).
7. Predicting overuse injuries in sport: lessons from mechanical fatigue tests. *Presented at the Graduate Student Seminar*, Department of Kinesiology, University of Massachusetts Amherst (March, 2018).
8. Walking around on cracks: mechanical fatigue and skeletal fragility. *Presented to the Orthopaedic Surgery Group at Foothills Hospital,* University of Calgary (March, 2017).
9. Modeling overuse injury as a mechanical fatigue phenomenon. *Presented at the 35th Anniversary Celebration of the Human Performance Laboratory,* University of Calgary (December, 2016).
10. Bone imaging and fracture risk after spinal cord injury. *Presented at the Hotchkiss Brain Institute's Spinal Cord/Nerve Injury & Pain NeuroTeam Community Research Retreat*, Cochrane, Alberta (November, 2015).

11. On the importance of early therapeutic treatment to prevent bone loss after spinal cord injury. *Presented at the Department of Clinical Neurosciences Grand Rounds*, University of Calgary (June, 2014).
12. Etiology and prevention of skeletal fracture: a biomechanist's perspective. *Presented at the McCaig Institute's Seminar Series*, McCaig Institute for Bone and Joint Health, University of Calgary (January, 2014).
13. The mechanical consequence of bone loss in spinal cord injury. *Presented at the 36th Annual Interdisciplinary Spinal Cord Course*, Rehabilitation Institute of Chicago & Department of Physical Medicine and Rehabilitation, Northwestern University Feinberg School of Medicine (June, 2013).
14. Bone health in persons with spinal cord injury. *Presented at the 2012 Annual Assembly of the American Academy of Physical Medicine and Rehabilitation*, Atlanta, Georgia (November, 2012).
15. Computed tomography based finite element models can accurately predict stiffness and strength of proximal tibiae loaded in torsion. *Presented at the Biomechanics Seminar*, Department of Orthopedic Surgery, Rush University Medical Center (October, 2012).
16. Exposing the skeletons in the closet of spinal cord injury rehabilitation. *Presented at the 35th Annual Interdisciplinary Spinal Cord Course*, Rehabilitation Institute of Chicago & Department of Physical Medicine and Rehabilitation, Northwestern University Feinberg School of Medicine (June, 2012).
17. Structural analysis of human bone using quantitative computed tomography. *Presented at the Northwestern University Bone Health and Osteoporosis Program Meeting*, Department of Physical Medicine and Rehabilitation, Northwestern University Feinberg School of Medicine (June, 2011).
18. The influence of stride length and running mileage on a probabilistic stress fracture model. *Presented at the Research Seminar for Musculoskeletal Modeling*, Department of Physical Therapy, University of Delaware (April, 2010).
19. Foot joint pressures during dynamic gait simulation. *Presented at the 11th Annual International Prescription Foot Orthotic Laboratory Association Conference*, Vancouver, British Columbia (October, 2008).

Technical Reports/Other Papers

1. **Edwards W.B.**, Derrick T.R. (2011). Preventing overuse injuries in running: a perspective based on tissue damage, repair, and adaptation. *Track and Cross Country Journal*, 1, 17-22. http://www.tccjournal.org/
2. Derrick T.R., **Edwards W.B.** (2008). Motion control and cushioning in karhu and competitors men's running shoes. Daniel Richard Design, Portsmouth, NH.
3. Derrick T.R., **Edwards W.B.** (2007). Assessing physical attributes of gamers for use in variable attribute video games. Reference LLC, Elkader, IA.
4. De Witt J.K., Perusek G., Bentley J., **Edwards W.B.**, Gilkey K., Lewandowski B., Samorezov S., Savina M., Hagan R.D. (2007). Kinematics and electromyographic evaluation

of locomotion on the enhanced-zero gravity locomotion simulator: a comparison of external loading mechanisms. *NASA Technical Report TP-2007-214764*.

5. Hagan, R.D., De Witt, J.K., Perusek, G., Bently, J., **Edwards, W.B.**, Scott-Pandorf, M., Norcross, J., Wilson, C., English, K., Zidon, L., Schaffner, G., Everett, M. (2007). Locomotion kinematics in microgravity. In *C-9 and Other Microgravity Simulations, NASA Technical Report TM-2007-214765* (edited by N. Skinner, W. Thompson, J. Nillen, and T. Schlegal), pp. 76-83.
6. Hagan R.D., De Witt J.K., Bentley J., **Edwards W.B.**, Scott-Pandorf M., Loehr J., Norcross J., Smith C., English K., Zidon L., Kingerey J., Kane N. (2006). The effect of additional mass upon locomotion in microgravty. *NASA Internal Report to the C9 Office.* Johnson Space Center, Houston, TX.
7. De Witt J.K., **Edwards W.B.**, Scott-Pandorf M., Hagan R.D. (2006). Locomotion in a lunar environment. *NASA Internal Report to the C9 Office.* Johnson Space Center, Houston, TX.
8. Derrick T.R., **Edwards W.B.** (2006). Impact testing of 33 running shoes for Runners World Magazine. Exeter Research, Inc., Exeter, NH.
9. Derrick T.R., **Edwards W.B.** (2005). Impact testing of 29 running shoes for Runners World Magazine. Exeter Research, Inc., Exeter, NH.
10. Derrick T.R., **Edwards W.B.** (2005). Impact testing of 34 running shoes and 8 trail running shoes for Runners World Magazine. Exeter Research, Inc., Exeter, NH.

Contributions to Conference Symposia

1. Making strides towards understanding stride length: physiological, biomechanical, and clinical perspectives. *Presented at the 2017 American College of Sports Medicine Annual Meeting and World Congress on Exercise is Medicine®*, Denver, Colorado, Role: Presenter (May, 2017).
2. Will the real loading parameter please stand up? *Presented at the Nike Human Locomotion Symposium American Society of Biomechanics 40th Annual Meeting*, Raleigh, North Carolina, Role: Organizer/Presenter (August, 2016).

GRANT ACTIVITY

Major Awards and Contracts (larger than $15k)

2019-2020 Title: Building predictive models of joint loading using integrated motion capture and inertial measurement technologies
Funding agency: Natural Science and Engineering Research Council (NSERC), Research Tools and Instruments Grants Program
Principal Investigator: Reed Ferber
Amount: $150,000
Role: Co-Applicant

2019-2020 Title: Investigating the relationship between biomechanics and inflammation in psoriatic disease
Funding agency: Spondyloarthritis Research Consortium of Canada, Pilot Project Grant
Principal Investigator: Cheryl Barnabe
Amount: $25,000
Role: Co-Applicant

2018-2021 Title: Effects of antiresorptive agents on intracortical microarchitecture, mechanical fatigue properties, and whole-bone strength
Funding agency: Amgen Inc. (Investigator-initiated)
Principal Investigator: **W. Brent Edwards**
Amount: $341,250

2018-2024 Title: NSERC CREATE for the Wearable Technology Research and Collaboration (We-TRAC) training program
Funding agency: Natural Science and Engineering Research Council (NSERC), Collaborative Research and Training Experience (CREATE)
Principal Investigator: Reed Ferber
Amount: $1,650,000
Role: Co-Applicant

2018-2021 Title: Dynamic biaxial materials testing system for characterizing whole-bone fracture and fatigue
Funding agency: Canada Foundation for Innovation (CFI), John R. Evans Leaders Fund (JELF)
Principal Investigator: **W. Brent Edwards**
Amount: $466,956

2018-2020 Title: Biomechanical, immunologic and radiographic profiling of psoriasis and psoriatic arthritis
Funding agency: McCaig Institute for Bone and Joint Health, University of Calgary, Encore Catalyst Award
Principal Investigator: Cheryl Barnabe
Amount: $30,000
Role: Co-Applicant

2018-2019 Title: Analysis of the implications of lumbopelvic alignment on the alignment of the cervical spine
Funding agency: McCaig Institute for Bone and Joint Health, University of Calgary, Encore Catalyst Award
Principal Investigator: Fred H. Nicholls
Amount: $30,000
Role: Co-Applicant

2016-2018 Title: The influence of intracortical microarchitecture on the mechanical fatigue behavior of human bone
Funding agency: University of Calgary, Faculty of Kinesiology Seed Grant Fund
Principal Investigator: **W. Brent Edwards**
Amount: $50,000
*For this work we were also awarded 3 shifts of Beamtime at the Canada Light Source Synchrotron Facility though a competitive peer review process (2017)

2016-2019 Title: Increasing bone mass and bone strength in individuals with chronic spinal cord injury: maximizing response to therapy
Funding agency: U.S. Army Medical Research and Materiel Command (USAMRMC), Department of Defense (DoD), BA150039
Principal Investigator: Thomas J. Schnitzer
Amount: $481,260 US
Role: Site Principal Investigator

2016-2020 Title: Computational modeling of stress-fracture injuries
Funding agency: Henry M. Jackson Foundation for the Advancement of Military Medicine Inc., U.S. Army Medical Research and Materiel Command (USAMRMC), Department of Defense (DoD), Subcontract to W81XWH-14-2-0134
Principal Investigator: Beatriz Crosby (Site PI: Chun Phoebe Xu)
Subcontract Amount: $113,664 US
Role: Sub Principal Investigator

2016-2020 Title: Towards the real-time monitoring of tendon strain and cumulative damage to minimize the risk of patellar tendinopathy
Funding agency: National Basketball Association (NBA)/GE Healthcare
Principal Investigator: **W. Brent Edwards**
Amount: $138,521 US

2016-2017 Title: Dynamic biaxial testing system for the fatigue and failure of bone
Funding agency: Natural Science and Engineering Research Council (NSERC), Research Tools and Instruments Grants Program
Principal Investigator: **W. Brent Edwards**
Amount: $150,000

2016-2018 Title: Eyes High Postdoctoral Scholars Award
Funding agency: University of Calgary, Eyes High Postdoctoral Scholars Competition
Supervisor: **W. Brent Edwards**
Amount: $100,000

2015-2019 Title: Kinesiology Dean's Doctoral Studentship Award
Funding agency: University of Calgary, Faculty of Kinesiology
Supervisor: **W. Brent Edwards**
Amount: $100,000

2015-2021 Title: Multiscale modeling of the skeletal system: whole-body movement to cellular deformation
Funding agency: Natural Science and Engineering Research Council (NSERC), Discovery Grants Program, RGPIN-2015-01029
Principal Investigator: **W. Brent Edwards**
Amount: $138,000

2014-2019 Title: Prevention of bone loss after acute SCI by zoledronic acid: durability, effect on bone strength, and use of biomarkers to guide therapy
Funding agency: U.S. Army Medical Research and Materiel Command (USAMRMC), Department of Defense (DoD), SC130125 (W81XWH-14-2-0193)
Principal Investigator: Thomas J. Schnitzer
Amount: $2,014,681 US
Role: Site Principal Investigator

2012-2016 Title: A prospective study of human bone adaptation using a novel in-vivo loading model
Funding agency: National Institutes of Health/NIAMS R01 AR063691
Principal Investigator: Karen L. Troy
Amount: $1,674,302 US
Role: Collaborator

2011-2013 Title: Changes in proximal tibia fracture strength as a function of time elapsed since spinal cord injury
Funding agency: National Institutes of Health/NIAMS F32 AR061964 NRSA Postdoctoral Training Grant
Principal Investigator: **W. Brent Edwards**
Amount: $98,080 US

2010-2015 Title: Effect of Teriparatide, vibration and the combination on bone mass and bone architecture in chronic spinal cord injury
Funding agency: U.S. Army Medical Research and Materiel Command (USAMRMC), Department of Defense (DoD), SC090010 (W81XWH-10-1-0951)
Principal Investigator: Thomas J. Schnitzer
Amount: $2,073,450 US
Role: Site Principal Investigator

2010-2011 Title: Assessment of change in bone mass and bone architecture in acute spinal cord injury: quantitative computed tomography (QCT) analysis
Funding agency: Merck Inc. (Investigator-initiated)
Principal Investigator: Karen L. Troy & Thomas J. Schnitzer
Amount: $58,152 US
Role: Postdoctoral Fellow. Contributions include collecting, processing, and analyzing quantitative computed tomography data, as well as intellectual contribution to the dissemination of data.

2009-2011 Title: A fundamental study of nanoscale material properties of dental composite-tooth interfaces
Funding agency: The Chancellor's Discovery Fund for Multidisciplinary Research (University of Illinois at Chicago)
Principal Investigator: Carmen M. Lilley, Ana Bedran-Russo, & Karen L. Troy
Amount: $58,430 US
Role: Postdoctoral Fellow. Contributions include mathematical modeling of time-dependent material behavior and finite element model development.

2006-2007 Title: Effects of orthotic intervention on foot motion and bone strain during simulated cadaver walking
Funding agency: KLM Orthotics (investigator-initiated)
Principal Investigator: Timothy R. Derrick
Amount: $23,724 US
Role: Investigator

Seed Grants and Small Contracts (less than $15k)

2019-2020 Title: Effect of alendronate therapy on bone fatigue properties in ovariohysterectomized rabbits
Funding agency: McCaig Institute for Bone and Joint Health, University of Calgary, Clinician-Scientist Collaboration Seed Grant
Principal Investigator: **W. Brent Edwards**
Amount: $10,000

2019-2020 Title: Validation of the femorotibial ratio using EOS imaging
Funding agency: Section of Orthopaedic Surgery, University of Calgary, COREF Research Award
Principal Applicant: Annick den Daas
Amount: $7,400
Role: Co-Applicant

2019-2020 Title: Development of an ankle loading jig for dynamic CT analysis of syndesmosis motion
Funding agency: Section of Orthopaedic Surgery, University of Calgary, COREF Research Award
Principal Applicant: Murray Wong
Amount: $10,746
Role: Co-Applicant

2019-2020 Title: Establishing normative relationship of spino-pelvic alignment to femoral-acetabular orientation
Funding agency: Section of Orthopaedic Surgery, University of Calgary, COREF Research Award
Principal Applicant: Jonathon Bourget-Murray
Amount: $9,875
Role: Co-Applicant

2017-2020 Title: Association between elevated femoral strain and risk of atypical femoral fracture
Funding agency: McCaig Institute for Bone and Joint Health, University of Calgary, Clinician-Scientist Collaboration Seed Grant
Principal Investigator: **W. Brent Edwards**
Amount: $10,000

2014-2015 Title: Biomechanical measures of the muscle-bone unit in humans
Funding agency: University of Calgary, University Research Grants Committee
Principal Investigator: **W. Brent Edwards**
Amount: $15,000

2014-2016 Title: DXA assessed BMD at the distal femur and proximal tibia in individuals with spinal cord injury: precision of protocol and relation to injury duration
Funding agency: Alberta Paraplegia Foundation
Principal Investigator: Gillian Simonett & **W. Brent Edwards**
Amount: $10,000

2007 Title: Assessing physical attributes of gamers for use in variable attribute video game
Funding agency: Reference LLC (investigator-initiated)
Principal Investigator: Timothy R. Derrick & **W. Brent Edwards**
Amount: $7,772 US

2006 Title: Response of human bone to various impacting patterns
Funding agency: Pease Family Doctoral Research Grant (Department of Kinesiology, Iowa State University)
Principal Investigator: **W. Brent Edwards**
Amount: $1,700 US

SERVICE

Professional Societies

Secretary General (Appointed), International Society of Biomechanics, 2017-Present

Conference Organization

1. Scientific Program Chair, The 14th Footwear Biomechanics Symposium, Kananaskis, Canada, July 28-30, 2019
2. Special Symposia and Invited Speakers Chair, the XXVII Congress of the International Society of Biomechanics held in conjunction with the 43rd Annual Meeting of the American Society of Biomechanics, Calgary, Canada, July 31-August 4, 2019

Editorial Board

JBMR Plus - open access journal of the American Society for Bone and Mineral Research, 2019-

Scientific Reports - open access journal from the publishers of Nature, 2016-2019

Guest Editor

Footwear Science, Supp 1, Proceedings of the 14th Footwear Biomechanics Symposium (Kananaskis, Canada, 2019)

Ad Hoc Manuscript Reviewer

Annals of Biomedical Engineering
Bone
Bone Reports
BioMedical Engineering OnLine
Clinical Biomechanics
Computer Methods in Biomechanics and Biomedical Engineering
Computer Methods in Biomechanics and Biomedical Engineering: Imaging & Visualization
Footwear Science
Gait & Posture
Human Movement Science
Journal of Applied Biomechanics
Journal of Clinical Densitometry
Journal of Biomechanics
Journal of Biomechanical Engineering
Journal of Bone and Mineral Research Plus
Journal of the Mechanical Behavior of Biomedical Materials
Journal of Orthopaedic Research
Journal of Orthopaedic Surgery and Research
Journal of the Royal Society Interface
Journal of Sports Sciences
Medical Engineering and Physics
Medicine and Science in Sports and Exercise

Osteoarthritis and Cartilage
Osteoporosis International
Physical Therapy in Sport
PLOS ONE
Proceedings of the Institution of Mechanical Engineers, Part H, Journal of Engineering in Medicine
Scandinavian Journal of Medicine & Science in Sports
Spinal Cord
Sports Biomechanics
Therapeutics and Clinical Risk Management

Conference Abstract Reviewer

American Society of Biomechanics; Orthopaedic Research Society

Postdoctoral Research Fellows (*completed)

1. Ifaz Haider (PDF Supervisor), Human Performance Laboratory, University of Calgary, 01/2017-Present.
2. *Gianluca Vernillo (PDF Co-supervisor with Guillaume Millet), Human Performance Laboratory, University of Calgary, 01/2017-12/2017.

Graduate Students (*completed)

1. Angela Senevirathna (PhD Co-supervisor with Reed Ferber), NSERC CREATE – We-TRAC Graduate Studentship, Biomedical Engineering Graduate Program, University of Calgary, *Thesis title to be determined*, 09/2019-Present.
2. Olivia Bruce (PhD Supervisor), NSERC Postgraduate Scholarship – Doctoral, Biomedical Engineering Graduate Program, University of Calgary, Reducing barriers for the quantification of tibial strain during running, 09/2018-Present.
3. Anja-Verena Behling (PhD Co-supervisor with Benno Nigg), Biomedical Engineering Graduate Program, University of Calgary, “Understanding foot movement – kinematic coupling in the foot”, 09/2018-Present.
4. Arash Khassetarash (PhD Co-supervisor with Guillaume Millet), Kinesiology Dean’s Doctoral Studentship, Faculty of Kinesiology, University of Calgary, “Biomechanics and physiology of two strategies to reduce the risk of injury in downhill running: repeated bouts and stride frequency manipulation”, 01/2017-Present, Date of Candidacy: 03/13/2019.
5. Colin Firminger (PhD Supervisor), NSERC Alexander Graham Bell Canada Graduate Scholarship – Doctoral, Biomedical Engineering Graduate Program, University of Calgary, “Repetitive loading and cumulative damage in the human patellar tendon”, 09/2016-Present, Date of Candidacy: 09/17/2018.
6. Michael Baggaley (PhD Supervisor), FGS QE II Award, Faculty of Kinesiology, University of Calgary, “Musculoskeletal loading in graded running”, 09/2016-Present, Date of Candidacy: 12/11/2018.

7. *Olivia Bruce (MSc Supervisor), NSERC Alexander Graham Bell Canada Graduate Scholarship - Master's, Faculty of Kinesiology, University of Calgary, “Towards the real-time monitoring of Achilles tendon strain”, 09/2016-08/2018, Date of Defense: 06/08/2018.
8. Sasa Cigoja (PhD Co-supervisor with Benno Nigg), Faculty of Kinesiology, University of Calgary, “Optimal individualized longitudinal midsole bending stiffness of sport shoes to increase athletic performance”, 09/2016-Present, Date of Candidacy: 09/18/2018.
9. *Lindsay Loundagin (PhD Supervisor), Kinesiology Dean’s Doctoral Studentship, Faculty of Kinesiology, University of Calgary, “The influence of intracortical microarchitecture on the mechanical fatigue behavior of human bone”, 05/2015-Present, Date of Defense: 05/28/2020.
10. *Anita Fung (MSc Supervisor), FGS QE II Award Biomedical Engineering Graduate Program, University of Calgary, “Experimental validation of finite element predicted bone strain in human metatarsals”, 05/2015- 04/2017, Date of Defense: 04/10/2017.
11. *Colin Firminger (MSc Supervisor), NSERC Alexander Graham Bell Canada Graduate Scholarship - Master's, Biomedical Engineering Graduate Program, University of Calgary, “Effects of minimalist footwear and stride length reduction on metatarsal strains during running”, 09/2014-08/2016, Date of Defense: 06/17/2016.
12. *Aleen Pangka (MSc Supervisor), FGS QE II Award, Biomedical Engineering Graduate Program, University of Calgary, “Biomechanical measures of the muscle-bone unit in humans”, 09/2014-08/2016, Date of Defense: 05/26/2016.
13. *Sabina Manz (MSc Co-supervisor with Benno Nigg), Faculty of Kinesiology, University of Calgary, “Identifying discriminable movement patterns while running in a comfortable and an uncomfortable shoe condition”, 09/2016-12/2018, Date of Defense: 11/21/2018.
14. *Stefan Hoerzer (PhD Co-supervisor with Benno Nigg), Faculty of Kinesiology, University of Calgary, “Functional groups in running biomechanics”, 09/2014-12/2017, Date of Defense: 10/03/2017.

Undergraduate Students (as part of summer/semester research fellowship)

1. Rebecca Page (Supervisor), Alberta Innovates Summer Research Studentship, NSERC USRA (declined), Faculty of Kinesiology, University of Calgary, “Effects of antiresorptive treatment on the fatigue life and microarchitecture of cortical bone”, 05/2020-09/2020.
2. Rebecca Page (Supervisor), Alberta Innovates Summer Research Studentship, NSERC USRA (declined), Markin USRP in Health & Wellness (declined), Faculty of Kinesiology, University of Calgary, “Mechanisms of bone fatigue and fragility associated with antiresorptive agents”, 05/2019-09/2019.
3. Mattea Lee (Supervisor), McCaig Institute – Singleton Summer Studentship Award, NSERC USRA (declined), School of Kinesiology, Western University, “Relationship between stressed volume and fatigue life measurements of whole bone”, 05/2019-09/2019.
4. Michael Esposito (Supervisor), Alberta Innovates Summer Research Studentship, Faculty of Kinesiology, University of Calgary, “Effects of load carriage and step length on lower extremity kinetics during running”, 05/2018-09/2018.

5. Mattea Lee (Supervisor), NSERC USRA, School of Kinesiology, Western University, "Passive recovery of residual strain in cortical bone following cyclic loading", 05/2018-09/2018.
6. Michael Esposito (Supervisor), PURE Award, Faculty of Kinesiology, University of Calgary, "Examining triceps surae muscle-tendon interaction during load carriage walking and running", 05/2017-09/2017.
7. James Mather (Supervisor), Faculty of Kinesiology, University of Calgary, "Quantifying patellar tendon stiffness in basketball athletes during isometric contractions", 05/2017-09/2017.
8. Annette Harvey (Supervisor), Faculty of Science, University of Victoria, "The effects of loading mode on the mechanical fatigue behavior of cortical bone", 05/2017-09/2017.
9. James Mather (Supervisor), Markin USRP in Health and Wellness, Faculty of Kinesiology, University of Calgary, "Lower extremity energy absorption in running: effects of body stature, load carriage, and stride length" 09/2016-05/2017.
10. Stacey Lobos (Supervisor), Markin USRP in Health and Wellness, Faculty of Kinesiology, University of Calgary, "Dual-energy x-ray absorptiometry assessed bone mineral density at the proximal tibia and distal femur in individuals with acute and chronic spinal cord injury" 09/2015-05/2016.
11. Ian Matthews (Supervisor), NSERC USRA, Faculty of Kinesiology, University of Calgary, "Examining the mechanical properties of a synthetic bone analog for use in orthopedic applications" 05/2015-09/2015.
12. Anita Fung (Supervisor), PURE Award, Department of Mechanical Engineering, University of Calgary, "Effect of teriparatide, vibration, and the combination on bone quality in chronic spinal cord injury" 05/2014-09/2014.
13. Manuel Zea (Supervisor), PURE Award, NSERC CREATE Award (declined), Department of Mechanical Engineering, University of Calgary, "DXA assessed BMD at the knee in individuals with spinal cord injury" 05/2014-09/2014.

Undergraduate Students (as part of honours project or course credit)

14. Layne Willms, BMEN 500, Department of Chemical and Petroleum Engineering, Schulich School of Engineering, University of Calgary, "Influence of vascular canal morphology on the fatigue life of cortical bone", 09/2020-04/2021.
15. Mark Pineda, KNES 466, Faculty of Kinesiology, University of Calgary, "A comparison of running biomechanics during grounded versus normal running", 09/2020-04/2021.
16. Rebecca Page, Honours Program, Faculty of Kinesiology, University of Calgary, "Effects of denosumab, alendronate, or denosumab after alendronate on humeral bone microarchitecture in ovariectomized cynomolgus monkeys, 09/2020-04/2021.
17. Emily Kuervers, BMEN 500, Department of Mechanical and Manufacturing Engineering, Schulich School of Engineering, University of Calgary, "Mechanical properties of patellar tendon as a function of knee angle and tendon load determined by shear wave elastography and digital image correlation", 09/2019-04/2020.

18. Harsupreet Sidhu, BMEN 500, Department of Mechanical and Manufacturing Engineering, Schulich School of Engineering, University of Calgary, “Exploring critical distance methods for fatigue life predictions of bovine cortical bone”, 09/2019-04/2020.
19. Monica Russell, KNES 466, Faculty of Kinesiology, University of Calgary, “Kinetic and kinematic differences between youth and young adults with and without youth sport related ankle joint injury during single leg squat and single leg balance tasks”, 09/2019-04/2020.
20. Donovan Smith, Honours Program, Faculty of Kinesiology, University of Calgary, “Experimental validation of finite element predicted bone strain in the rabbit tibia”, 09/2018-04/2019.
21. Russell Pennock, KNES 466, Faculty of Kinesiology, University of Calgary, “Quantifying microdamage in mechanically fatigued bone with barium sulfate contrast agent”, 09/2018-04/2019.
22. Manuel Zea, BMEN 500, Department of Mechanical and Manufacturing Engineering, Schulich School of Engineering, University of Calgary, “Development and validation of a continuum-level FE model of a rabbit tibia”, 09/2017-04/2018.
23. Lindon Fedorick, KNES 466, Faculty of Kinesiology, University of Calgary, “Determining the effects of obesity on mechanical properties of tendons”, 09/2017-04/2018.
24. Mollee Ramsey, KNES 466, Faculty of Kinesiology, University of Calgary, “Biomechanical mechanisms of competitive jump rope athletes resulting in overuse injuries: a comparison to running”, 09/2017-04/2018.
25. Teague Foreman, KNES 466, Faculty of Kinesiology, University of Calgary, “The effects of surface stiffness and shoe cushioning on jump height performance in high school and varsity basketball players”, 09/2017-04/2018.
26. Genneva Kennedy, Honours Program, Faculty of Kinesiology, University of Calgary, “Effects of elastic kinesiology tape on ankle joint kinematics, moments and perceptions of performance in youth competitive jump rope athletes”, 09/2017-04/2018.
27. Michael Esposito, Honours Program, Faculty of Kinesiology, University of Calgary, “Validity of inertial measurement unit derived estimates of stride length in running”, 09/2017-04/2018.
28. Anita Fung, BMEN 501, Department of Mechanical and Manufacturing Engineering, Schulich School of Engineering, University of Calgary, “An approach to examine the effect of implant geometry on periprosthetic bone remodeling from bone-anchored amputation prostheses”, 09/2014-12/2014.
29. Ian Matthews, KNES 466, Faculty of Kinesiology, University of Calgary, “Sample preparation and loading protocol development for uniaxial compression of synthetic and bovine cortical bone”, 09/2014-04/2015.
30. David Heckelsmiller (Co-Supervisor), Department of Kinesiology and Nutrition, University of Illinois at Chicago, “QCT bone mineral analysis of individuals with spinal cord injury”, 01/2013-08/2013.

31. Lindsey Graff (Co-Supervisor), Honors Program, Department of Kinesiology and Nutrition, University of Illinois at Chicago, “Finite element prediction of surface strain and failure load at the distal radius”, 09/2009-05/2010.
32. Krista Sheldahl (Co-Supervisor), Honors Program, Department of Kinesiology, Iowa State University, “Effects of speed on internal structural loading during locomotion”, 09/2008-05/2009.
33. Danielle Barkema (Co-Supervisor), Honors Program, Department of Kinesiology, Iowa State University, “Reductions in bone stress from tensile muscle activity during drop landings”, 09/2007-05/2008.
34. John Vogel (Co-Supervisor), Honors Program, Department of Kinesiology, Iowa State University, “Attenuation of Inline Skate Impacts” 09/2007-05/2008.
35. Brad Julius (Co-Supervisor), Honors Program, Department of Kinesiology, Iowa State University, “Saturation effects of human bone to mechanical stimuli”, 09/2006-05/2007.
36. Morgan Brubaker (Co-Supervisor), Honors Program, Department of Kinesiology, Iowa State University, “The effects of changing voluntary impacts of experienced runners”, 09/2005-05/2006.
37. Barbara Nsiah (Co-Supervisor), McNair Scholar, Department of Mechanical Engineering, Iowa State University, “Noninvasive measurement of bone strain”, 09/2005-05/2006.

High School Students

1. Divya Budihal (Supervisor), The Heritage Youth Researcher Summer (HYRS), Alberta Innovates – Health Solutions, Henry Wise Wood High School, “Predictive models of bone adaptation due to mechanical disuse and mechanical overuse”, 07/2014-08/2014.
2. Shannon Edie (Supervisor), The Heritage Youth Researcher Summer (HYRS), Alberta Innovates – Health Solutions, Queen Elizabeth High School, “Effects of running speed and grade on lower-extremity joint kinematics”, 07/2015-08/2015.

Graduate Student Supervisory Committees (*completed)

1. Ryan Plett (MSc Supervisory Committee), Biomedical Engineering Graduate Program, University of Calgary, “Development of a novel longitudinal analysis of HR-pQCT and finite element predicted bone strength”, 2018-Present.
2. Drew Lawson (MSc Supervisory Committee), Faculty of Kinesiology, University of Calgary, *Thesis title to be determined*, 2018-Present.
3. *Alex Chen (MSc Supervisory Committee), Faculty of Kinesiology, University of Calgary, “Developing procedures for and software for correcting artifacts in motion data”, 2016-2019, Date of Defense: 04/17/2019.
4. Andrew Pohl (PhD Supervisory Committee), Faculty of Kinesiology, University of Calgary, *Thesis title to be determined*, 2018-Present.
5. *Mariya Shtil (MSc Supervisory Committee), Biomedical Engineering Graduate Program, University of Calgary, “Longitudinal assessment of mechanical strength of trabecular bone

underlying bone marrow lesions following acute anterior cruciate ligament injuries", 2017-2019, Date of Defense: 05/30/2019.

6. Danielle Whittier (PhD Supervisory Committee), Biomedical Engineering Graduate Program, University of Calgary, "The prediction of fragility fractures at the hip using HR-pQCT as a novel tool for diagnosis of osteoporosis", 2017-Present, Date of Candidacy: 07/27/18.
7. Anand Masson (PhD Supervisory Committee), Biomedical Engineering Graduate Program, University of Calgary, "Structure-function relationship in murine articular cartilage: from spontaneous degeneration to induced regenerative response", 2017-Present, Date of Candidacy: 07/26/18.
8. Perse Greco-Otto (PhD Supervisory Committee), Faculty of Veterinary Medicine, University of Calgary, "Exercising horses in water: understanding the workload, mechanics and conditioning effects of water treadmill training", 2017-Present, Date of Candidacy: 04/17/18.
9. *Brodie Ritchie (MSc Supervisory Committee), Biomedical Engineering Graduate Program, University of Calgary, "Effect of aging on tibiofemoral cartilage and meniscus stiffness", 2016-2017, Date of Defense: 07/21/17.
10. *Geoff Michalak (MSc Supervisory Committee), Biomedical Engineering Graduate Program, University of Calgary, "Concurrent assessment of knee cartilage morphology and bone microarchitecture using contrast-enhanced HR-pQCT Imaging", 2016-2018, Date of Defense: 05/14/2018.
11. *A. J. Macaulay (MSc Supervisory Committee), Faculty of Kinesiology, University of Calgary, "The use of real-time feedback to improve kinematic marker placement consistency among novice examiners", 2016-2017, Date of Defense: 05/10/2017.
12. Lindsay Gorrell (PhD Supervisory Committee), Faculty of Kinesiology, University of Calgary, "The safety of neck manipulation – quantifying displacements, forces and stress", 2016-Present.
13. Seong-won Han (PhD Supervisory Committee), Faculty of Kinesiology, University of Calgary, "Changes in patellofemoral joint mechanics in the presence of quadriceps muscle imbalance", 2016-Present.
14. Renata Kruger (PhD Supervisory Committee), Faculty of Kinesiology, University of Calgary, "Effects of fatigue on neuromuscular function and subsequent dynamic mechanical properties in young and elderly people", 2016-Present.
15. *Kristin Lorenzen (MSc Supervisory Committee), Faculty of Kinesiology, University of Calgary, "A comparison of biomechanical outcomes in single leg squat and vertical drop jump in individuals with and without a previous youth knee joint injury", 2015-2018, Date of Defense: 04/09/2018.
16. Andrew Michalski (PhD Supervisory Committee), Biomedical Engineering Graduate Program, University of Calgary, "Quantitative computed tomography calibration techniques for assessment of BMD and bone strength", 2015-Present.

17. *Ricky Watari (PhD Supervisory Committee), Faculty of Kinesiology, University of Calgary, “Evidence informed methods for predicting rehabilitation outcomes in patellofemoral pain”, 2015-Present.
18. *Jennifer Baltich (PhD Supervisory Committee), Faculty of Kinesiology, University of Calgary, “The Effects of isolated strengthening and functional training on strength, running mechanics, postural control and injury prevention in novice runners”, 2014-2016, Date of Defense: 05/05/2016.
19. *Scott Sibole (MSc Supervisory Committee), Biomedical Engineering Graduate Program, University of Calgary, “pyCellAnalyst: Extensive software for three-dimensional analysis of deforming cells specific to articular cartilage, 2014-2016, Date of Defense: 01/25/2016.
20. *Jessica Longworth (PhD Supervisory Committee), Department of Kinesiology and Nutrition, University of Illinois at Chicago, “Biomechanics of manual wheelchair propulsion: the effects of speed and exercise”, 2011-2014, Date of Defense: 01/31/2014.

Graduate Student Examination Committees

1. Alexander Wyma (MSc Defense), Biomedical Engineering Graduate Program, University of Calgary, “Modelling stirred suspension bioreactors for scalable expansion of pluripotent stem cells”, 06/20/2018.
2. Jessica Kupper (PhD Candidacy), Department of Mechanical and Manufacturing Engineering, Schulich School of Engineering, University of Calgary, 02/08/2018.
3. Christian Clermont (PhD Candidacy), Faculty of Kinesiology, University of Calgary, 11/23/2017.
4. Amanda Chan (MSc Defense), Biomedical Engineering Graduate Program, University of Calgary, “Evaluation of in vitro contact lens friction: effects of recombinant human proteoglycan 4 and test counterface”, 11/22/2017.
5. John Sevick (MSc Defense), Biomedical Engineering Graduate Program, University of Calgary “The Load response of the rabbit medial collateral ligament femoral enthesis”, 04/03/2017.
6. Matthew Jordan (PhD Defense), Medical Sciences Graduate Program, University of Calgary “Neuromuscular function and performance in alpine ski racers with anterior cruciate ligament reconstruction: a return to sport framework”, 01/23/2017.
7. Pardis Vakilottojar (PhD Candidacy), Department of Civil Engineering, Schulich School of Engineering, University of Calgary, 12/12/2016
8. Baaba Otoo (MSc Defense), Department of Mechanical and Manufacturing Engineering, Schulich School of Engineering, University of Calgary “Impact of knee joint loading on site-specific cartilage gene-expression in a porcine model”, 12/06/2016.
9. Kristen Barton (PhD Defense), Medical Sciences Graduate Program, University of Calgary “Use of a glucocorticoid to mitigate post-traumatic osteoarthritis development in the ovine knee”, 12/01/2016.

10. Michael Samsom (PhD Defense), Biomedical Engineering Graduate Program, University of Calgary "In vitro friction of contact lenses & model contact lens biomaterials: effect of proteoglycan 4", 11/28/2016.
11. Christina Jablonski (PhD Candidacy), Biomedical Engineering Graduate Program, University of Calgary, 09/01/2016.
12. Jaqueline Rios (PhD Candidacy), Faculty of Kinesiology, University of Calgary, 06/29/2016.
13. Maurice Mohr (PhD Candidacy), Faculty of Kinesiology, University of Calgary, 05/24/2016.
14. Ryan Schroeder (PhD Candidacy), Biomedical Engineering Graduate Program, University of Calgary, 04/26/2016.
15. Erin Hildebrandt (MSc Defense), Biomedical Engineering Graduate Program, University of Calgary, "Effect of increased 25(OH)D on bone health, a high resolution peripheral computed tomography study", 04/21/2016.
16. Mehdi Shekarforoush (PhD Candidacy), Biomedical Engineering Graduate Program, University of Calgary, 12/23/2015.
17. Marcel Rodriquez (PhD Candidacy), Department of Mechanical and Manufacturing Engineering, Schulich School of Engineering, University of Calgary, 11/16/2015.
18. Mohsen Akbari Shandiz (PhD Defense), Biomedical Engineering Graduate Program, University of Calgary, "Component placement in hip and knee replacement surgery: device development, imaging and biomechanics", 10/10/2015.
19. Emily Bishop (PhD Defense), Biomedical Engineering Graduate Program, University of Calgary, "Quantifying temporal changes in knee joint laxity and dynamic knee stability for healthy and acute ACL injured individuals", 01/05/2015.
20. Sarah Kenny (PhD Candidacy), Faculty of Kinesiology, University of Calgary, 09/03/2014.
21. Britta Jorgenson (MSc Defense), Biomedical Engineering Graduate Program, University of Calgary, "Cortical porosity in bone", 01/21/2014.

Other Service

1. President-Iowa State Kinesiology Graduate Student Association, 2006-2007.
2. Vice President-Iowa State University Kinesiology Graduate Student Association, 2005-2006.

POPULAR MEDIA HIGHLIGHTS

1. Broadcast interviews regarding locomotion in lunar gravity, Program, Network (Date): The Homestretch, CBC Radio (October 1, 2014); News at Six, CBC (September 29, 2014); News at Six, CTV (September 29, 2014).
2. "Calgary scientists put human movement in lunar gravity to the test" by Helen Pike, Metro News, URL: http://metronews.ca/news/calgary/1173866/calgary-scientists-put-human-movement-in-lunar-gravity-to-the-test/, October 3, 2014.

3. "How to prevent stress fractures" by Gretchen Reynolds, The New York Times, URL: http://well.blogs.nytimes.com/2009/12/01/phys-ed-how-to-prevent-stress-fractures/, December 1, 2009.
4. "Is running bad for your knees? Maybe not" by Adi Narayan, TIME.com, URL: http://www.time.com/time/health/article/0,8599,1948208,00.html, December 25, 2009.
5. "Pain-proof your stride" Cardio Bulletin edited by Laura Roberson, Men's Health Magazine, p. 46, May 2010.
6. "Stride Right" Scoop! Breakthroughs you can use, Women's Health Magazine, May 2010.