

## *Curriculum Vitae for Jessica M. Fritz, Ph.D.*

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Department of Orthopaedic Surgery  
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Milwaukee, WI 53226  
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### **EDUCATION:**

08/2000 – 05/2004 BSE, University of Iowa, Iowa City, IA  
08/2005 – 12/2007 MS, Marquette University, Milwaukee, WI  
01/2013 – 05/2016 PhD, Marquette University, Milwaukee, WI

### **PROFESSIONAL APPOINTMENTS:**

08/2005 – 05/2007 Teaching Assistant, Department of Biomedical Engineering, Marquette University, Milwaukee, WI  
06/2007 – 07/2008 Research Assistant, Orthopaedic & Rehabilitation Engineering Center (OREC), Marquette University/Medical College of Wisconsin (MU/MCW), Milwaukee, WI  
07/2008 – 06/2011 Senior Research Technicians, OREC, MU/MCW, Milwaukee, WI  
06/2011 – 05/2016 Research Engineer, OREC, MU/MCW, Milwaukee, WI  
06/2011 – present Lab Engineer & Manager, MCW Department of Orthopaedic Surgery's Center for Motion Analysis (CMA), Milwaukee, WI  
05/2016 – 6/2020 Research Assistant Professor, OREC, Milwaukee, WI  
09/2017 – present Scientific Appointment, Shriners Hospitals for Children, Chicago  
07/2020 – present Assistant Professor, Joint Department of Biomedical Engineering, Marquette University/Medical College of Wisconsin, Milwaukee, WI  
7/2020 – present Research Director, Center for Motion Analysis & Integrative Biomechanics Research Center, Department of Orthopaedic Surgery, Medical College of Wisconsin, Milwaukee, WI  
07/2020 – present Assistant Professor, Department of Orthopaedic Surgery, Medical College of Wisconsin, Milwaukee, WI

### **MEMBERSHIPS IN PROFESSIONAL SOCIETIES:**

2008 – 2009; 2019 – present Orthopaedic Research Society (ORS)  
2009 – 2010 IEEE Engineering in Medicine and Biology Society (EMBS)  
2011 – present Gait & Clinical Movement Analysis Society (GCMAS)  
2011 – present American Society of Biomechanics (ASB)  
2016 – present Biomedical Engineering Society (BMES)

## **EDITORSHIPS/EDITORIAL BOARDS/JOURNAL REVIEWS:**

### Editorial Board

01/2018 – present Foot & Ankle International  
01/2018 – present Foot & Ankle Orthopaedics

### Journal Review

01/2018 – present Foot & Ankle International  
01/2018 – present Foot & Ankle Orthopaedics

### Ad-hoc Review

01/2016 Invited abstract reviewer, GCMAS Annual Meeting  
05/2016 Poster judge, GCMAS Annual Meeting  
01/2017 Invited abstract reviewer, GCMAS Annual Meeting  
04/2017 Invited abstract reviewer, ASB Annual Meeting  
06/2017 Invited abstract reviewer, BMES Annual Meeting  
08/2017 Invited reviewer, Medical Engineering & Physics  
08/2017 Invited Session Co-Chair, “Injury Biomechanics II” at the 2017 BMES Annual Meeting  
05/2018 Invited reviewer, Human Movement Science

## **LOCAL/REGIONAL APPOINTED LEADERSHIP AND COMMITTEE POSITIONS:**

2016 – present Member, Peer Review Committee, CTSI

## **NATIONAL ELECTED/APPOINTED LEADERSHIP AND COMMITTEE POSITIONS:**

2019 – 2021 Chairman, Awards Committee, GCMAS

## **RESEARCH GRANTS/AWARDS/CONTRACTS/PROJECTS:**

### **Active**

Fritz 09/2019–08/2021  
NIH R03, “Determination of Pediatric Osteogenesis Imperfecta Bone Material Properties,” \$110,904, 25% effort.  
Role: Principal Investigator

Beck 03/2020-3/2023  
Medical College of Wisconsin Department of Orthopaedic Surgery Intramural Grant, “Contralateral SI Joint Stability After Unilateral Transiliac-transsacral Screw Fixation.”  
Role: Co-Investigator

Edelstein 06/2019-06/2021  
Medical College of Wisconsin Department of Orthopaedic Surgery Intramural Grant, “Comparison of Muscle Strength and Activation in Total Hip Arthroplasty Using Anterior Approach Vs. Posterior.”  
Role: Co-PI

Harris 06/2019-06/2021  
Medical College of Wisconsin Department of Orthopaedic Surgery Intramural Grant, “Evaluation of Long Term Post-Operative Gait Following Operatively Treated Ankle Fractures.”  
Role: Co-PI

Law 06/2019-06/2021  
Medical College of Wisconsin Department of Orthopaedic Surgery Intramural Grant, "Dynamic Assessment of Ambulation Following Total Ankle Arthroplasty with a Mobile Bearing Implant (STAR)."  
Role: Co-PI

Schmeling 06/01/2018-05/31/2020  
Medical College of Wisconsin Department of Orthopaedic Surgery Intramural Grant, Comparative Study of Quadriceps Strength and Gait Analyses between Infrapatellar and Suprapatellar Intramedullary Nailing for Tibial Shaft Fractures.  
Role: Co-PI

Schmeling 06/01/2018-05/31/2020  
Medical College of Wisconsin Department of Orthopaedic Surgery Intramural Grant, Long Term Effect of Isolated Femoral Shaft Fractures on Post-Operative Gait.  
Role: Co-PI

Law 03/01/2018-02/29/2021  
Medical College of Wisconsin Department of Orthopaedic Surgery Intramural Grant, Comparing Outcomes, Segmental Foot Motion, and Plantar Pressure Data of First Metatarsophalangeal Joint Implants.  
Role: Co-PI

### **Pending**

Meinerz 2020/2021  
Orthopaedic Trauma Association; Contralateral SI Joint Stability after Unilateral Transiliac-Transsacral Screw Fixation; in-kind effort  
Role: Co-Investigator

Fritz 10/2020 – 9/2023  
NIDILRR FIR; "Effect of Functional Strengthening on Mobility, Activity and Participation in Youth with Osteogenesis Imperfecta;" \$600,000; 45% effort.  
Role: Principle Investigator

### **Prior**

Cross 02/26/2018-02/25/2020  
Medical College of Wisconsin Department of Orthopaedic Surgery Intramural Grant, Correcting Abnormal Running Mechanics in Females Using a Neuromuscular Retraining Landing Program  
Role: Co-Investigator

Cross 03/01/2017-02/28/2019  
Medical College of Wisconsin Department of Orthopaedic Surgery Intramural Grant, Validation of Inertial Measuring Unit Sensors for use during Running Analysis.  
Role: Co-Investigator

Marks 06/01/2017-06/17/2018  
Medical College of Wisconsin Department of Orthopaedic Surgery Intramural Grant, Outcomes Analysis after Treatment of Calcaneal Fracture with Minimum Twelve Month Follow-Up.  
Role: Co-Investigator

09/2016-09/2017

Rare Diseases Clinical Research Network (RDCRN) Certificate Program from NIH National Center for Advancing Translational Sciences.

Role: Trainee

FP8336 Neilson 05/01/2015-04/30/2017

American Cancer Society and The Medical College of Wisconsin Cancer Center. Joint Kinetic Strategies in Oncology Patients with Femoral Endoprostheses. Goal: This study examines gait dynamics (kinematics, kinetics and EMG) as well as lower extremity strength of persons with a distal femoral endoprosthesis following sarcoma tumor removal. OpenSim will also be employed to provide more detailed joint loading data and insights into quantification of effects of this procedure on lower limb function.

Role: Consultant

H133E10007 Harris 10/1/2010-9/30/2017

U. S. Department of Education, National Institute on Disability and Rehabilitation Research (NIDRR) Rehabilitation Engineering Research Center on Technologies for Children with Orthopedic Disabilities

Goal: The goal of this RERC is to develop a national center with a focus on advanced engineering research and development based on innovative technologies addressing children with orthopedic disabilities and to transfer and commercialize these efforts to offer new tools, better technologies, and improved evidence-based treatment strategies.

Role: Research Engineer

Vetter 06/18/2015-06/17/2017

Medical College of Wisconsin Department of Orthopaedic Surgery Intramural Grant, Music as a Device to Alter Cadence and Lower Extremity Energy Absorption During Distance Running.

Role: Co-Investigator

Grindel 06/18/2015-06/17/2017

Medical College of Wisconsin Department of Orthopaedic Surgery Intramural Grant, Pre-Operative versus Post-Operative Kinematic and Muscle Activation Assessment of the Upper Extremity Following Rotator Cuff Repair.

Role: Co-Investigator

Law 4/2/2014-4/1/2015

Medical College of Wisconsin Department of Orthopaedic Surgery Intramural Grant, Fluoroscopic Sagittal Evaluation of Foot Motion in Three Different CAM Boot Designs.

Role: Co-Investigator

Hackbarth 7/1/2010-6/30/2011

Orthopedic Research and Education Foundation, Three-Dimensional Gait Analysis in Patients with Tumor Endoprostheses

Role: Research Engineer

R21 EB006840 Vogelwede  
NIH Biomedical Imaging and Bioengineering, Bionic Trans-Tibial Prostheses

Role: Research Engineer

Schimmels 4/1/2012-3/31/2013

AHW – Research and Education Program, CTSI Bridging the Gap between Patient Perception of Quality and the Engineering Performance of Assistive Lower Limb Devices

Role: Co-Investigator

Vetter

6/1/2013-5/31/2014

Medical College of Wisconsin Department of Orthopaedic Surgery Intramural Grant, Vibration Training Effects on the Biomechanics Related to Anterior Cruciate Ligament Injury  
Role: Co-Investigator

## **TEACHING EXPERIENCE:**

### **Invited Lectures**

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|---------|--|
| 10/2014 | Clinical Motion Analysis with Vicon, Guest Lecturer to Musculoskeletal Biomechanics II graduate course in biomedical engineering at Marquette University   |
| 09/2014 | Finite Element Analysis for Femoral Fracture Risk Assessment in Osteogenesis Imperfecta, Guest Lecturer to Musculoskeletal Biomechanics II graduate course in biomedical engineering at Marquette University |
| 10/2015 | Finite Element Analysis for Femoral Fracture Risk Assessment in Osteogenesis Imperfecta, Guest Lecturer to Biomechanics of Trauma graduate course in biomedical engineering at Marquette University          |
| 06/2016 | Bone Injury Risk Assessment in Children with Osteogenesis Imperfecta, The 19 <sup>th</sup> Annual John S. Gould Lectureship and Scientific Program   |
| 11/2016 | Femoral Biomechanics during Gait in Children with Osteogenesis Imperfecta, The 27 <sup>th</sup> Annual Sofield Lectures, Shriners Hospitals for Children – Chicago, Chicago, IL                              |

### **Courses**

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|-----------------------|--|
| 08/2005 – 05/2007     | <b>Teaching Assistant</b> , Department of Biomedical Engineering, Marquette University <ul style="list-style-type: none"><li>• Fall Semester, Lab Instructor for “Biomechanics Design Lab 1” – 40 students</li><li>• Spring Semester, Lab Instructor for “Biomechanics Design Lab 2” – 40 students</li></ul> |
| Fall 2013, 2011, 2009 | Introduction to MADYMO, Guest Lecturer to Biomechanics of Trauma graduate course in biomedical engineering at Marquette University   |
| Fall 2017             | BIEN 4995 – Independent Study on Running Kinematics, senior undergraduate student  |
| Spring 2018           | BIEN 4995 – Independent Study on Applied Finite Element Analysis in Biomechanics, senior undergraduate student   |
| Fall 2018             | BIEN 4931/5931 – Orthopaedic Biomechanics  |
| Spring 2019           | BIEN 6440 – Biomedical Engineering Analysis of Trauma  |

### **Workshops & Training**

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|-----------------------|---|
| Spring 2011 – 2014    | Answering Biomechanical Questions through Motion Analysis Studies, Biomechanics Design Lab 2 senior undergraduate course in biomedical engineering at Marquette University 2012 – present Motion Analysis training for postdoctoral fellows with the Orthopaedic & Rehabilitation Engineering Center at Marquette University/The Medical College of Wisconsin |
| Spring 2011 – present | Clinical Motion Analysis: Data Collection, Processing and Interpretation with Indications of Gait Patterns seen in Persons with Cerebral Palsy, Biomechanics Design Lab 2 senior undergraduate course in biomedical engineering at Marquette University   |
| Fall 2013, 2011, 2009 | MADYMO Applications, Biomechanics of Trauma graduate course in biomedical engineering at Marquette University   |
| 10/2014               | Clinical Motion Analysis: Data Collection, Processing and Interpretation, Musculoskeletal Biomechanics II graduate course in biomedical engineering at Marquette University   |

**COMMITTEE SERVICE:**

06/2011 – present      Member, MCW Department of Orthopaedic Surgery Research Committee  
03/2019 – present      Member, BIEN Biomechanics Curriculum Review Committee

**STUDENTS, FACULTY, RESIDENTS AND CLINICAL/RESEARCH FELLOWS MENTORED:****Medical Students**

J. Fleischmann, MCW, Summer 2011  
M. Lueder, MCW, Summer 2011  
A. Rzepka, MCW, Summer 2011  
K. Kirkpatrick, MCW, Summer 2014  
C. Meinerz, MCW, 2015 – 2018, research mentor  
C. Andrews, MCW, Summer 2017  
C. Stark, MCW, Summer 2018  
T. Loeffler, MCW, 2018 – present, research mentor  
B. Becker, MCW, 2018 – present, research mentor  
D. Wiese, MCW, Summer 2019  
Z. Retzlaff, MCW, Summer 2019  
M. Maisel, MCW, Summer 2019  
A. Middleton, MCW, 03/2019 – present, research mentor

**Postdoctoral Fellows**

P. Grover, MD, PhD; 2/2010 – 6/2012  
C. Albert, PhD; 7/2012 – 7/2015  
U.I. Udoekwere, PhD; 6/2012 – 2/2014  
S. Grice, MD; 8/2012 – 8/2014  
B. McHenry, PhD; 5/2013 – 9/2018  
E. Exten, MD; 8/2013 – 7/2014  
K. Kruger, PhD; 3/2015 – 12/2018  
C. Garman, PhD; 4/2015 – 2/2017  
N. Kurapati, MD; 6/2015 – 5/2017  
J. Amene, MD; 7/2017 – 6/2018  
C. Constantino; 7/2018 – present

**Graduate Students**

B. Cripe, MS 2011, research mentor and committee member  
P. Roscher, MS 2012, research mentor and committee member  
J. Kertis, MS 2012, research mentor and committee member  
R. Inawat, MS 2014, research mentor  
E. Schaefer, MS 2016, research mentor  
F. Mohamud, MS 2020 (expected), research mentor and committee member

## REFEREED JOURNAL PUBLICATIONS/ORIGINAL PAPERS

1. **Fritz JM**, Smith PA and Harris GF: Muscle force sensitivity of a finite element fracture risk assessment model in osteogenesis imperfecta, *Biomedical Sciences Instrumentation*, 45:316-321, 2009.
2. **Fritz JM**, Guan Y, Wang M, Smith PA, and Harris GF: A Fracture Risk Assessment Model of the Femur in Children with Osteogenesis Imperfecta (OI) During Gait, *Medical Engineering & Physics*, 31:1043-1048, 2009.
3. Meyer AR, **Fritz JM**, Harris GF. Biomechanical model to assess injury reduction during impact, *Proceedings of the IEEE Engineering in Medicine and Biology Society. Conference Proceedings IEEE Engineering in Medicine and Biology Society 2009*, 5267-5270, 2009.
4. Kertis JD, **Fritz JM**, Long JT, and Harris GF: Static and Dynamic Calibration of an Eight-Camera Optical System for Human Motion Analysis, *Critical Reviews in Physical and Rehabilitation Medicine*, 22(1-4):49-60, 2010.
5. Sun J, **Fritz JM**, Del Toro DR and Voglewede, PA: Amputee Subject Testing Protocol, Results, and Analysis of a Powered Transtibial Prosthetic Device. *Journal of Medical Devices*, 8(4), 041007, 2014.
6. Shaker JL, Albert C, **Fritz J**, Harris G: Recent developments in osteogenesis imperfecta, *F1000Res*, 4, 681, 2015.
7. **Fritz JM**, Inawat RR, Slavens BA, McGuire JR, Ziegler DW, Tarima SS, Grindel SI, and Harris, GF: Assessment of Kinematics and Electromyography following Arthroscopic Single-Tendon Rotator Cuff Repair. *PM&R*, 9(5), 464-476, 2017. doi: 10.1016/j.pmrj.2016.08.031.[Epub 2016 Sep 14].
8. Roscher P, **Fritz JM**, Kurapati N, Daley R, and Harris G: Three-dimensional Biomechanical Model of Wrist Dynamics During Activities of Daily Living. *Critical Reviews in Physical and Rehabilitation Medicine*, 28(1), 37-48, 2016.
9. McHenry BD, Exten EL, Cross JA, Kruger KM, Law B, **Fritz JM**, and Harris, GF. Sagittal Subtalar and Talocrural Joint Assessment During Ambulation with Controlled Ankle Movement (CAM) boots: A Comparative Study. *Foot & Ankle International*, 38(11), 1260-1266, 2017. doi: 10.1177/1071100717723129. Epub 2017 Aug 11.
10. Canseco K, Kruger KM, **Fritz JM**, Konop KA, Tarima S, Mark RM, and Harris GF. Distribution of Segmental Foot Kinematics in Patients with Degenerative Joint Disease of the Ankle. *Journal of Orthopaedic Research*, 2017 November 15. Doi: 10.1002/jor.23807. [Epub ahead of print].
11. Murphy MP, Rammer JR, Vinehout KL, Caballero MR, Cornwell CM, **Fritz JM**, and Harris GF. Inverse Kinematic Assessment of Rehabilitative Therapy in Children Using Orthotics. *Proceedings of the IEEE Engineering in Medicine and Biology Society. Conference Proceedings IEEE Engineering in Medicine and Biology Society 2016*, *In Press*
12. **Fritz JM**, Grosland NM, Smith PA and Harris GF: A Geometry Sensitivity in Finite Element Models of Long Bones in Osteogenesis Imperfecta, *Biomedical Sciences and Instrumentation*, 2019.
13. Cross JA, McHenry BD, **Fritz JM**, Law BC, Schmidt TG, and Harris GF. Kinematic Model for Assessment of In Vivo Hindfoot Motion during Gait using Biplane Fluoroscopy, *Biomedical Sciences and Instrumentation*, 2019.
14. **Fritz JM**, Schaefer EK, Kipp K, Harris GF, Cross JA, and Vetter CS. A Principal Component Analysis Investigation of Drop Landings for Defining Anterior Cruciate Ligament (ACL) Injury Risk Factors, *Biomedical Sciences and Instrumentation*, *In Press*, 2020

## Peer Reviewed Conference Abstracts

1. **Fritz JM**, Guan Y, Fan Z, Smith PA, Harris GF. Patient-specific finite element analysis for femur fracture risk assessment during gait in osteogenesis imperfecta, **poster** at the Annual Meeting of the Orthopaedic Research Society; 2008 March; San Francisco, CA, USA.

2. Meyer A, **Fritz JM**, Harris GF. TRID cranial analysis during rear impact simulation with MADYMO, **poster** at the ASME 2009 Summer Bioengineering Conference; 2009 June; Lake Tahoe, CA, USA.
3. Meyer A, **Fritz JM**, Harris GF. TRID cervical analysis during rear impact simulation with MADYMO, **poster** at the ASME 2009 Summer Bioengineering Conference; 2009 June; Lake Tahoe, CA, USA.
4. Meyer AR, **Fritz JM**, Harris GF. Biomechanical model to assess injury reduction during impact, **poster** at the Annual International Conference of the IEEE Engineering in Medicine and Biology Society. IEEE Engineering in Medicine and Biology Society. Annual Conference. 2009; 2009:5267-70.
5. **Fritz JM**, Harris GF. Assessment of gender variations in the cervical response to rear impacts, **poster** at the Annual Meeting of the American Society of Biomechanics; 2010 August; Providence, RI, USA.
6. **Fritz JM**, Grosland NM, Smith PA, Harris GF. Improved mesh for a finite element model of fracture risk assessment in osteogenesis imperfecta, **poster** at the Annual Meeting of the American Society of Biomechanics; 2011 August; Long Beach, CA, USA.
7. Slavens BA, **Fritz JM**, Mickschl DJ, Wiske D, Talerico M, et al. A quantitative assessment tool for post-operative rotator cuff repair, **poster** at the Annual Meeting of the Gait & Clinical Movement Analysis Society; 2011 April; Bethesda, MD, USA.
8. **Fritz JM**, Grosland NM, Smith PA, Harris GF. Brittle bone fracture risk with transverse isotropy, **poster** at the Annual Meeting of the 2013 American Society of Biomechanics; 2013 September; Omaha, NE, USA.
9. Kertis JD, **Fritz JM**, Long JT, Krzak JJ, Graf A, et al. Biomechanical evaluation of an optical system for outreach clinical application in underserved areas, **poster** at the Annual Meeting of the Gait & Clinical Movement Analysis Society; 2013 May; Cincinnati, OH, USA.
10. Inawat R, **Fritz JM**, Rankine L, Grindel SI, Slavens BA, et al. Glenohumeral joint kinematics following single tendon rotator cuff repair, **poster** at the Annual Meeting of the Gait & Clinical Movement Analysis Society; 2013 May; Cincinnati, OH, USA.
11. **Fritz JM**, Cobb L, Hackbarth D, King D, Neilson JC, et al. Gait and strength analyses in persons with distal femoral tumor endoprostheses, **poster** at the 7th World Congress of Biomechanics; 2014 July; Boston, MA, USA.
12. Inawat R, **Fritz JM**, Cobb L, Mickschl D, Grindel SI, et al. Glenohumeral joint kinematics during activities of daily living (ADL) following single tendon rotator cuff repair, **poster** in the student competition at the 7th World Congress of Biomechanics; 2014 July; Boston, MA, USA.
13. Roscher P, **Fritz JM**, Harris GF. Biomechanical model of triaxial wrist dynamics during tasks of daily living, **poster** at the 7th World Congress of Biomechanics; 2014 July; Boston, MA, USA.
14. Roscher P, **Fritz JM**, Harris GF. Biomechanical model of triaxial wrist dynamics during tasks of daily living, **podium** at the Annual Meeting of the Gait & Clinical Movement Analysis Society; 2014 May; Newark, DE, USA.
15. **Fritz JM**, Albert CI, Grosland NM, Smith PA, Harris GF. Finite element assessment of pediatric femoral response to loading during ambulation: normal vs. osteogenesis imperfecta (OI) bone, **poster** at the 39<sup>th</sup> Annual Meeting of the American Society of Biomechanics; 2015 August; Columbus, OH, USA.
16. **Fritz JM**, Grover P, Grosland NM, Albert CI, McGrady L, Wang M, Harris GF. Validation of a finite element model of the humerus for fracture risk assessment during assisted ambulation, **poster** at the 39<sup>th</sup> Annual Meeting of the American Society of Biomechanics; 2015 August; Columbus, OH, USA.
17. **Fritz J**, Inawat R, Slavens B, Cobb L, Mickschl D, Ziegler D, Tarima S, Grindel S, Harris G. Glenohumeral joint kinematics during rehabilitation exercises following single tendon rotator cuff repair, **podium** at the Annual Meeting of the Gait & Clinical Movement Analysis Society; 2015 March; Portland, OR, USA.



18. Schaefer E, Kirkpatrick K, **Fritz J**, Grice S, Vetter C, Harris G. Contributions to ACL injury risk in active young adult females during double leg drop jump landings, **poster** at the Annual Meeting of the Gait & Clinical Movement Analysis Society; 2015 March; Portland, OR, USA.
- 19.
20. **Fritz JM**, Smith PA, and Harris, GF. Gluteus maximus activation during ambulation in children with osteogenesis imperfecta, **podium** at 2016 BMES Annual Meeting; 2016 October 5-9, Minneapolis, MN, USA.
21. **Fritz JM**, Grosland NM, Smith PA, and Harris GF. Comparison of finite element geometry development techniques in severe osteogenesis imperfecta. **poster** at the 40<sup>th</sup> Annual Meeting of the American Society of Biomechanics; 2016 August 2-5; Raleigh, NC, USA.
22. Meinerz CM, **Fritz JM**, Kipp K, Harris GF, and Vetter C. Running to the beat: does music affect running cadence and biomechanics? **poster** at the 40<sup>th</sup> Annual Meeting of the American Society of Biomechanics; 2016 August 2-5; Raleigh, NC, USA.
23. McHenry B, Exten E, Cross J, **Fritz J**, Law B, and Harris G. Sagittal plane talocrural and subtalar kinematics within a CAM boot: a fluoroscopic approach, **poster** at the 40<sup>th</sup> Annual Meeting of the American Society of Biomechanics; 2016 August 2-5; Raleigh, NC, USA.
24. Schaefer E, **Fritz J**, Smith M, Vetter C, Tarima S, Harris G. Principal component analysis of ACL injury risk factors during double leg drop jump landing dynamics, **podium** at the Annual Meeting of the Gait & Clinical Movement Analysis Society; 2016 May, Memphis, TN, USA.
25. **Fritz JM**, Smith PA, and Harris, GH. A finite element analysis comparison of the effects of bowing deformity and gluteus muscle forces on femoral stress in OI type I, podium at the 2017 Annual Meeting of the Biomedical Engineering Society, October 11-14, Phoenix, AZ, USA.
26. **Fritz JM**, Garman CMR, Albert CI, Bauwens J, Hackbarth DA Jr, King DM, Neilson JC, and Harris GF. Lower body kinematics and joint reaction forces with distal femoral endoprostheses following limb salvage surgery for treatment of osteosarcomas, poster at the 2017 Annual Meeting of the American Society of Biomechanics, August 8-11, Boulder, CO, USA.
27. Garman CM, **Fritz JM**, Bauwens J, Hackbarth DA Jr, King DM, Neilson JC, and Harris GF. Lower limb joint dynamics in oncology patients with distal femoral endoprostheses, poster at the ORS 2017 Annual Meeting; 2017 March 19-22, San Diego, CA, USA.
28. **Fritz JM**, Ford N, Meinerz CM, Kipp K, Vetter C, and Harris GF. Knee Dynamics and Running Cadence: A Controlled Case Study, poster at the 42<sup>nd</sup> Annual Meeting of the American Society of Biomechanics, August 8-11, 2018 Rochester, MN, USA.
29. **Fritz JM**, Canseco K, Konop KA, Toburen B, Kruger KM, Marks R, and Harris GF. Ambulatory Kinematics from a Multi-Segmental Foot Model following Open Reduction with Internal Fixation (ORIF) of Calcaneus Fractures, podium at the 2018 Annual Gait & Clinical Movement Analysis Society Conference; 2018 May 22-25, Indianapolis, IN, USA.
30. Andrews C, **Fritz J**, and Cross J. Validation of Delsys Trigno IMU Sensors for use in Biomechanical Running Models, poster at the 2018 Annual Gait & Clinical Movement Analysis Society Conference; 2018 May 22-25, Indianapolis, IN, USA.
31. Kruger K, Konop K, **Fritz J**, Canseco K, and Harris G. Importance of X-Ray Offset Measurements in Multi-Segment Foot Models, poster at the ORS 2018 Annual Meeting; 2018 March 10-13, New Orleans, LA, USA.
32. Toburen B, Fritz A, **Fritz J**, Canseco K, Harris G, and Marks RM. Gait Analysis After Open Reduction and Internal Fixation of Calcaneal Fractures, poster at the ORS 2018 Annual Meeting; 2018 March 10-13, New Orleans, LA, USA.
33. Stark CW, **Fritz JM**, Canseco K, Konop KA, Kraus J, Law BC and Harris GF. Gait Analysis Following Synthetic Cartilage Implantation at the First Metatarsophalangeal Joint, poster at the ORS 2019 Annual Meeting, February 2-5, 2019, Austin, TX.
34. Loeffler TE, **Fritz JM**, Lenhart RL, Moyle KA, Beck CJ, Martin JM, Schmelting GJ and Harris GF. Assessment of Knee Gait and Strength Following Surgical Repair of Isolated Femur Fracture, poster at the ORS 2019 Annual Meeting, February 2-5, 2019, Austin, TX.

35. Saxton J, **Fritz J**, Dziuk C, and Cross J. Gender Difference of Joint Coordination and Kinetics in Healthy Runners, podium at ISB/ASB 2019 Congress, July 31- August 4, 2019, Calgary, Canada.
36. Radmanovic K, Albert CI, **Fritz JM**, Smith PA, and Harris GF. Characterization of Bone Material Properties in Pediatric Cases of Severe Osteogenesis Imperfecta, podium at ISB/ASB 2019 Congress, July 31 – August 4, 2019, Calgary, Canada.
37. Maisel ME, Lenhart RL, Loeffler TL, Martin JM, Beck CJ, Harris GF, Schmeling GJ, and **Fritz JM**. Long-term Gait And Strength Analysis Following Post-operative Repair Of Femoral Shaft Gunshot Fractures. Proceedings of the ORS 2020 Annual Meeting. Poster No. 866. Phoenix, AZ. February 8-11, 2020.
38. Becker BM, Muscott RK, Bartynski ZA, Beck CJ, Martin JM, Harris GF, Schmeling GJ and **Fritz JM**. Long-term Assessment Of Gait And Strength Following Surgical Repair By Intramedullary Nailing Of Isolated Tibial Shaft Fracture. Proceedings of the ORS 2020 Annual Meeting. Poster No. 1709. Phoenix, AZ. February 8-11, 2020.
39. Wiese DJ, Meinerz CM, Harris GF, Harris GF, Law BC, and **Fritz JM**. Plantar Pressure Assessment of Scandinavian Total Ankle Replacement (STAR) Implantation Patients. Proceedings of the ORS 2020 Annual Meeting Poster No. 2166. Phoenix, AZ. February 8-11, 2020.
40. Loeffler T, **Fritz J**, Lenhart R, Beck C, Martin J, Harris G, and Schmeling G. Evaluation of Hip Strength and Gait Following Intramedullary Nail Fixation of Isolated Diaphyseal Femoral Fracture. AAOS 2020 Annual Meeting. Accepted for Poster Presentation.
41. Maisel ME, Schmeling GJ, Lenhart RL, Loeffler TE, Martin JM, Beck CJ, Harris GF, Konop KA, and **Fritz JM**. Femoral Shaft Gunshot Fractures: Long-Term Post-Operative Gait and Strength. GCMAS 2020 Annual Meeting. Accepted for Podium Presentation. In Press
42. Bartynski ZA, Becker BM, Muscott RK, Beck CJ, Martin JM, Harris GF, Schmeling GJ and **Fritz JM**. Long-Term Evaluation of Kinetics and SF-36 Scores after Intramedullary Nailing of Tibial Shaft Fractures. GCMAS 2020 Annual Meeting. Accepted for Podium Presentation. In Press
43. Wiese DJ, **Fritz JM**, Konop KA, Canseco K, Meinerz CM, Harris GF, and Law BC. Comparison of Ankle Kinematics between a Multi-segment Foot Model and a Single-segment Lower Extremity Model. GCMAS 2020 Annual Meeting. Accepted for Podium Presentation. In Press

### **Book Chapters**

1. **Fritz JM**, Grosland N, Smith P and Harris G: Finite element modeling and analysis applications in osteogenesis imperfecta. Book chapter in: Transitional Care in Osteogenesis Imperfecta: Advances in Biology, Technology, and Clinical Practice, Shriners Press, Chicago, IL, 2015, Ch. 9, pp. 149-160.
2. Albert C, **Fritz JM** and Harris GF: Biomechanics of osteogenesis imperfecta: current concepts and emerging horizons. Book chapter in: Transitional Care in Osteogenesis Imperfecta: Advances in Biology, Technology, and Clinical Practice, Shriners Press, Chicago, IL, 2015, Ch. 3, pp. 27-48.
3. Kertis JD, **Fritz JM**, Long JT and Harris GF: Motion Analysis Strategy Appropriate for 3D Kinematic Assessment of Children and Adults with Osteogenesis Imperfecta. Book chapter in: Transitional Care in Osteogenesis Imperfecta: Advances in Biology, Technology, and Clinical Practice, Shriners Press, Chicago, IL, 2015, Ch. 15, pp. 251-268.