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**EDUCATION AND PROFESSIONAL HISTORY**

2008 Ph.D. Biomedical Engineering, The University of Iowa, Iowa City, Iowa

2003 B.S.E. Biomedical Engineering, The University of Iowa, Iowa City, Iowa

## Professional and Academic Positions

2003 – 2008 Graduate Research Assistant, Orthopedics and Rehabilitation,   
 The University of Iowa, Iowa City, Iowa

2008 – 2010 Assistant Research Engineer, Orthopedics and Rehabilitation,

The University of Iowa, Iowa City, Iowa

2009 – 2014 Adjunct Assistant Professor, Biomedical Engineering,   
 The University of Iowa, Iowa City, IA

2010 – 2014 Research Assistant Professor, Orthopedics and Rehabilitation,

The University of Iowa, Iowa City, Iowa

2014 – 2019 Assistant Professor, Orthopedics and Rehabilitation

The University of Iowa, Iowa City, IA

2014 – 2019 Assistant Professor (Secondary), Biomedical Engineering

The University of Iowa, Iowa City, IA

2019 – Associate Professor, Orthopedics and Rehabilitation

The University of Iowa, Iowa City, IA

2019– Associate Professor (Secondary), Biomedical Engineering

The University of Iowa, Iowa City, IA

2019– Director, Orthopedic Biomechanics Laboratory

**Honors and Awards**

2017 Featured Research Project on the Congressionally Directed Medical Research Program Website - Peer Reviewed Orthopedic Research Program/Congressionally Directed Medical Research Program

2018 Nominated as Student Supervisor of the Year - University of Iowa Office of Student Employment

2018 Clinical Biomechanics Award (co-author), American Society of Biomechanics, for the paper entitled “*Contact Stress Over-Exposure Correlates with OA Development in Acetabular Fractures”*

2023 Harris Award from the Orthopedic Research Society/Journal of Orthopedic Research for the paper titled “*Chronically Elevated Contact Stress Exposure Correlates with Intra-Articular Cartilage Degeneration in Patients with Concurrent Acetabular Dysplasia and Femoroacetabular Impingement”*

**Teaching**

**Classroom, Seminar, Teaching Laboratory**

November 2014 **Research Skills, Primary Instructor** (75%)

This is a course teaching PGY1 orthopedic residents the basics of identifying and crafting good research projects and the logistics of grant writing, grant accounting, and project administration within the Department of Orthopedics & Rehabilitation and within the University of Iowa.

January 2016 **Research Skills, Primary Instructor** (50%)

This is a course teaching PGY1 orthopedic residents the basics of identifying and crafting good research projects and the logistics of grant writing, grant accounting, and project administration within the Department of Orthopedics & Rehabilitation and within the University of Iowa.

January 2017 **Research Skills, Primary Instructor** (50%)

This is a course teaching PGY1 orthopedic residents the basics of identifying and crafting good research projects and the logistics of grant writing, grant accounting, and project administration within the Department of Orthopedics & Rehabilitation and within the University of Iowa.

February 2018, October 2019, October 2020 **Research Skills, Primary Instructor** (100%)

This is a course teaching PGY1 orthopedic residents the basics of identifying and crafting good research projects and the logistics of grant writing, grant accounting, and project administration within the Department of Orthopedics & Rehabilitation and within the University of Iowa. This was an updated course from a fully lecture-based version taught in previous years.

Fall Semester 2020 **Research In Athletic Training AT6100**, **Primary Instructor** (100%)

First in a two-part series focusing on identification of an athletic training problem/issue and examination through theories and research. Analysis of literature and derivation of evidence-based concepts for clinical decision making and data informed practice. Use of appropriate academic writing style. Differentiation between quantitative and qualitative research. Critically responding to research dilemmas in a way that aligns professional ethics and values. Offered online.

**Undergraduate Directed Individual/Independent Study**

2008-2009 Bradley Flaucher, Christopher Holbein, Nicholas Laird – Biomedical Engineering Senior Design Project – *Cryogenic probe redesign for inducing osteonecrosis in the emu femoral head*

2014 Jocelyn Todd – Summer 2014 ICRU Research Fellowship

2014-2015 Jocelyn Todd – Academic Year ICRU Research Fellowship

2015 Jocelyn Todd – NSF Fellowship Awardee

2015 *Finite Element Analysis of a Stemmed Total Ankle Implant.* Undergraduate Honors Thesis, Jocelyn Todd, Department of Biomedical Engineering, The University of Iowa.

2016 *The Effects of Fractionated Irradiation on Bone Morphology and Strength.* Undergraduate Honors Thesis, Hannah Infelt, Department of Mechanical Engineering, The University of Iowa.

2018 Casey Blaylock – Summer 2018 ICRU Research Fellowship – *Spring ligament reconstruction and augmentation using fiber tape*

2018-2019 Casey Blaylock – Academic Year ICRU Research Fellowship – *Joint contact stress modeling in the Yucatan minipig hock*

2021 Ana Figueroa – NSF Research Experience for Undergraduates – *Mechanical effects of virtual prophylactic stabilization in femurs with metastatic bone disease*

2021- Dominic Rivas – Iowa Bioscience Alliance Student - *The effect of patient-specific standing position on computed joint contact stress in patients with hip dysplasia*

2022 Johnathan Stokes – NSF Research Experience for Undergraduates – *Utilizing digital image correlation to quantify median nerve movement inside the carpal tunnel during hand activity*

2022 Bryce Bisset – NSF Research Experience for Undergraduates – *Finite element modeling of hip dysplasia*

2022-2023 Dominic Rivas, Andrew Behrens, Olivia Coder – Biomedical Engineering Senior Design Project – *Devices to Stabilize and Guide Femoral Derotational Osteotomy in the Operating Room*

2023 Kayla Podlewski – NSF Research Experience for Undergraduates – *Effects of the center of rotation on contact stresses derived from computational models of dysplastic hips*

2023 Jasmine Miftahof – Summer Undergraduate MSTP Research (SUMR) Program – *Gap symmetry in total knee arthroplasty: Analyzing the effects of robotic assistance*

2023-2024 Betsy Montiel – Iowa Biosciences Academy *– Bone density changes in externally offloaded Yucatan minipig hock joints after intra-articular fracture*

**Graduate Directed Individual/Independent Study**

* Ana Figueroa, Ph.D. Candidate May 2027, Biomedical Engineering, Committee Chair
* Sara Magdziarz, M.S. Student, Biomedical Engineering, Committee Member

# Masters Theses Directed/Supervised

2010 *Investigation of Local Deformation of the Median Nerve in Magnetic Resonance Images of the Carpal Tunnel.* M.S. Thesis, Nicole M. Kunze, Department of Biomedical Engineering, The University of Iowa.

2011 *Constitutive Mechanical Properties of Carpal Tunnel Soft Tissue Structures.* M.S. Thesis, Erin K. Main, Department of Biomedical Engineering, The University of Iowa.

2014 *Parametric Finite Element Analyses of Reverse Shoulder Arthroplasty Design*M.S. Thesis, Vijay N. Permeswaran, Department of Biomedical Engineering, The University of Iowa.

2015 *Validation and Applications of Discrete Element Analysis in the Hip Joint.* M.S. Thesis, Kevin Townsend, Department of Biomedical Engineering, The University of Iowa.

2016 *Analysis of Hindfoot Alignment for Total Ankle Arthroplasties.* M.S. Thesis, Heidi Kirsten Johanna Bingenheimer, Department of Biomedical Engineering, The University of Iowa.

2017 *Multimodal Evaluation of Local and Whole-Joint Cartilage Changes in an In Vivo Animal Model,* M.S. Thesis, David J. Heckelsmiller, Department of Biomedical Engineering, The University of Iowa.

2017 *A Computational Investigation of Patient Factors Contributing to Contact Stress Abnormalities in the Dysplastic Hip Joint.* M.S. Thesis, Holly D. Thomas, Department of Biomedical Engineering, The University of Iowa.

2018 *Validation of Computational Methods for Fracture Assessment of Metastatic Disease to the Proximal Femur.* M.S. Thesis, Palani T. Permeswaran, Department of Biomedical Engineering, The University of Iowa.

2022 *Variations in Contact Stresses on the Distal Tibial Articular Surfaces following Intra-Articular Fracture Reduction.* M.S. Thesis, Winter J. Philibert, Department of Biomedical Engineering, The University of Iowa.

**PhD Qualifying Exam Committees**

2024 Reza Amouzandeh – Biomedical Engineering: Evaluating silk fibroin as a biomaterial for the tissue interface of airway-on-a-chip to model cystic fibrosis

# PhD Dissertations Directed/Supervised

2017 *Development of a Computational Model to Study Instability and Scapular Notching in Reverse Shoulder Arthroplasty.* Ph.D. Dissertation, Vijay N. Permeswaran, Department of Biomedical Engineering, The University of Iowa.

2021 *Developing Image Analysis Methods to Evaluate Cartilage Degeneration in Animal Models of Osteoarthritis.* Ph.D. Dissertation, Linjun Yang, Department of Biomedical Engineering, The University of Iowa.

2021 *Optimization of Chronic Contact Stress Exposure to Improve the Mechanical Environment of the Dysplastic Hip Joint Following Periacetabular Osteotomy*. Ph.D. Dissertation, Holly D. Thomas-Aitken, Department of Biomedical Engineering, The University of Iowa.

2024 *Selecting a Cartilage Constitutive Model for Finite Element Analysis of Cartilage Impact Injuries.* Ph.D. Dissertation, Nicole Szabo, Department of Biomedical Engineering.

# PhD Committees Served

2023 *Lipid Oxidation Links Mitochondria to the Redox Environment and Articular Joint Pathology*. Ph.D. Dissertation, Madeline Hines, Free Radical and Radiation Biology in the Graduate College, The University of Iowa. (Advisor: Mitchell C. Coleman).

2024 *Metabolic Interactions between Heme, Thiol, and Mitochondrial Pathways in Articular Chondrocytes*. Ph.D. Dissertation, Suryamin (Mike) Liman, Free Radical and Radiation Biology in the Graduate College, The University of Iowa. (Advisor: Mitchell C. Coleman).

**Summer Medical Student Research Scholars**

2015 *Optimizing Design Features of a Novel Device for Joint Distraction in the Ankle*Ryan Frisbie - M1, University of Iowa.

2016 *Determining Return of Scapulohumeral Rhythm in Patients After Reverse Total Shoulder Arthroplasty*James Hall - M1, University of Iowa.

2018 *Surgical Management of Proximal Femur Metastatic Disease of Bone - A Pilot Study*Arham Pasha - M1, University of Iowa.

2019 *Validation of the Effects of Femoral Version Abnormalities on Computationally Derived Hip Contact Stresses*  
Alex Meyer - M1, University of Iowa.

2019 *Association Between Changes in Localized Acetabular Coverage and Joint Contact Stress* after *Periacetabular Osteotomy to Treat Hip Dysplasia*  
Tyler Larson - M1, University of Iowa.

2022 *Dynamic Ultrasound Measurement of Median Nerve Kinematics in the Carpal Tunnel* Kyle Kato - M1, University of Iowa.

2022 *Measurement and Diagnosis of Ulnar Variance in Athletes*

Noah Scigliano - M1, University of Iowa.

2023 *The Effect of Full-Body Weightbearing on Palmar Pressure Distribution*

Noah Scigliano – M2, University of Iowa.

**Scholarship/Professional Productivity**

# Peer-Reviewed Papers

# Goetz JE, Chung YY, Zimmerman DL, Pedersen DR, Robinson DA, Conzemius MG, Brown TD. Steroid-induced versus cryoinsult-induced femoral head osteonecrosis: Statistical measurement of histologic abnormality focalization. J Musculoskelet Res. 2005;9(4);161–172.

1. **Goetz JE**, Derrick TR, Pedersen DR, Robinson DA, Conzemius MG, Brown TD. Hip joint contact force in the emu (Dromaius novaehollandiae) during normal level walking. J Biomech. 2008;41(4):770–778. PMC2291359.
2. **Goetz JE**, Pedersen DR, Robinson DA, Conzemius MG, Baer TE, Brown TD. The apparent critical isotherm for cryoinsult-induced osteonecrotic lesions in the emu femoral head. J Biomech. 2008;41(10):2197–2205.PMC2612542.
3. Kunze NM, **Goetz JE**, Thedens DR, Baer TE, Lawler EA, Brown TD. Individual flexor tendon identification within the carpal tunnel: A semi-automated analysis method for serial cross-section MR images. Orthop Res Reviews. 2009;1:31–42. PMC2917116.
4. **Goetz JE**, Thedens DR, Kunze NM, Lawler EA, Brown TD. Day-to-day variability of median nerve location within the carpal tunnel. Clin Biomech. 2010;25:660–665. PMC2900433.
5. Vaseenon T, Tochigi Y, Heiner AD, **Goetz JE**, Baer TE, Fredericks DC, Martin JA, Rudert MJ, Hillis SL, Brown TD, McKinley TO. Organ-level histological and biomechanical responses from localized incongruity in the rabbit knee. J Orthop Res. 2011;29(3):340–346. PMC3700429.
6. Main EK, **Goetz JE**, Rudert MJ, Goreham-Voss CM, Brown TD. Apparent transverse compressive material properties of the digital flexor tendons and the median nerve in the carpal tunnel. J Biomech. 2011;44:863–868. PMC3048925.
7. **Goetz JE**, Robinson DA, Pedersen DR, Conzemius MG, Brown TD. Cryoinsult parameter effects on the histologically-apparent volume of experimentally-induced osteonecrotic lesions. J Orthop Res. 2011;29(6):931–937. PMC3082588.
8. **Goetz JE**, Baer TE. Mechanical behavior of carpal tunnel subsynovial connective tissue under compression. Iowa Orthop J. 2011;31:127–132. PMC3215125.
9. Heiner AD, Martin JA, McKinley TO, **Goetz JE**, Thedens DR, Brown TD. Frequency content of cartilage impact force signal reflects acute histologic structural damage. Cartilage. 2012;3(4):314–322. PMC3760429.
10. Main EK, **Goetz JE**, Baer TE, Klocke NF, Brown TD. Volar/dorsal compressive mechanical behavior of the transverse carpal ligament. J Biomech. 2012;45(7):1180–1185. PMC3327765.
11. Phisitkul P, Ebinger T, **Goetz JE**, Vaseenon T, Marsh JL. Forceps reduction of the syndesmosis in rotational ankle fractures: A cadaveric study. J Bone Joint Surg. 2012;94(24):2256–2261.
12. Ebinger T, **Goetz JE**, Dolan L, Phisitkul P. 3D model analysis of existing CT syndesmosis measurements. Iowa Orthop J. 2013;33:40–46. PMC3748890.
13. Arunakul M, Amendola A, Gao Y, **Goetz JE**, Femino JE, Phisitkul PP. Tripod Index: A new radiographic parameter assessing foot alignment: Foot Ankle Int. 2013;34(10);1411–1420.
14. Phisitkul P, Sullivan JP, **Goetz JE**, Marsh JL. Maximizing safety in screw placement for posterior facet fixation in calcaneus fractures: A cadaveric radio-anatomical study. Foot Ankle Int. 2013;34(9):1279–1285.
15. Heiner AD, Smith AD**, Goetz JE**, Goreham-Voss CM, Judd KT, McKinley TO, Martin JA. Cartilage-on-cartilage versus metal-on-cartilage impact characteristics and responses. J Orthop Res. 2013;31(6):887–93. PMC3740544.
16. Pedersen DR, Martin JA, Thedens DR, Klocke NF, Roberts NH, **Goetz JE**, Amendola A. Imaging biopsy composition at ACL reconstruction. Orthop Res Rev. 2013;5:35–41. PMC4028072.
17. Arunakul M, Tochigi Y, **Goetz JE**, Diestelmeier BW, Heiner AD, Rudert MJ, Fredericks DC, Brown TD, McKinley TO. Replication of chronic abnormal cartilage loading by medial meniscus destabilization for modeling osteoarthritis in the rabbit knee in vivo. J Orthop Res. 2013;31(10);1555–1560. PMC5113956.
18. Arunakul M, Amendola A, Gao Y, **Goetz JE**, Femino JE, Phisitkul P. Tripod index: Diagnostic accuracy in symptomatic flatfoot and cavovarus foot: Part 2. Iowa Orthop J. 2013;33:47-53. PMC3748891.
19. **Goetz JE**, Kunze NM, Main EK, Thedens DR, Baer TE, Lawler EA, Brown TD. MRI-apparent localized deformation of the median nerve within the carpal tunnel during functional hand loading. Ann Biomed Eng. 2013;41(10):2099–2108. PMC3766442.
20. Pedersen DR, **Goetz JE**, Kurriger GL, Martin JA. Comparative digital cartilage histology for human and common OA models. Orthop Res Rev. 2013; 5:13–20. PMC3899351.
21. Tennant JN, Rungprai C, Pizzimenti MA, **Goetz JE**, Phisitkul PP, Femino JE, Amendola A. Risks to the blood supply of the talus after four methods of total ankle arthroplasty: A cadaveric injection study. J Bone Joint Surg. 2014;96(5):395–402.
22. Bisicchia S, Rosso F, Pizzimenti MA, Rungprai C, **Goetz JE**, Amendola A. Injury risk to extraosseous knee vasculature during osteotomies: A cadaveric study with CT and dissection analysis. Clin Orthop Relat Res. 2015;473(3):1030–1039. PMC4317419.
23. Westermann RW, Rungprai C, **Goetz JE**, Femino JE, Amendola A, Phisitkul P. The effect of suture button fixation on iatrogenic syndesmotic malreduction: A cadaveric study. J Bone Joint Surg Am. 2014;96(20):1732–1738.
24. Rungprai C, **Goetz JE**, Arunakul M, Gao Y, Femino JE, Amendola A, Phisitkul P. Validation and reproducibility of a biplanar imaging system versus conventional radiography of foot and ankle radiographic parameters. Foot Ankle Int. 2014;35(11):1166–1175.
25. **Goetz JE**, Fredericks D, Petersen E, Rudert MJ, Baer T, Swanson E, Roberts N, Martin J, Tochigi Y. A clinically realistic large animal model of intra-articular fracture that progresses to post-traumatic osteoarthritis. Osteoarthritis Cartilage. 2015; 23(10):1797–1805.
26. Hettrich CM, Permeswaran VN, **Goetz JE**, Anderson DD. Mechanical tradeoffs associated with glenosphere lateralization in reverse shoulder arthroplasty. J Shoulder Elbow Surg. 2015; 24(11):1774–1781.
27. Duchman KR, **Goetz JE**, Uribe B, Amendola A, Barber J, Malandra A, Fredericks DC, Hettrich CM. Delayed administration of recombinant human parathyroid hormone improves early biomechanical strength in a rat rotator cuff repair model. J Shoulder Elbow Surg. 2016;25(8):1280–1287.
28. **Goetz JE**, Rungprai C, Tennant JN, Huber E, Uribe B, Femino J, Phisitkul P, Amendola A. Variable volumes of resected bone resulting from different total ankle arthroplasty systems. Foot Ankle Int. 2016;37(8):898–904.
29. Permeswaran VN, **Goetz JE**, Rudert MJ, Hettrich CM, Anderson DD. Cadaveric validation of a finite element modeling approach for studying scapular notching in reverse shoulder arthroplasty. J Biomech. 2016 Sep 6;49(13):3069–3073.
30. Baer T, Frisbie R, Willey M, **Goetz J**. Development of a simplified ankle distractor. ASME. Frontiers in Biomedical Devices, 2017 Design of Medical Devices Conference. 2017 Apr;2017:V001T03A005. doi: 10.1115/DMD2017-3438. PMC6135097.
31. Martin JA, Anderson DD, **Goetz JE**, Fredericks D, Pedersen DR, Ayati BP, Marsh JL, Buckwalter JA. Complementary models reveal cellular responses to contact stresses that contribute to post-traumatic osteoarthritis. J Orthop Res. 2017;35(3):515–523. PMC5303196.
32. **Goetz JE**, Coleman MC, Fredericks DC, Petersen EB, Martin JA, McKinley TO, Tochigi Y. Time-dependent loss of mitochondrial function precedes progressive histologic cartilage degeneration in a rabbit meniscal destabilization model. J Orthop Res. 2017;35(3):590–599. PMC5148713.
33. Heckelsmiller DJ, Rudert MJ, Baer TE, Pedersen DR, Fredericks DC, **Goetz JE**. Changes in joint contact mechanics in a large quadrupedal animal model after partial meniscectomy and a focal cartilage injury. J Biomech Eng. 2017;139(5). doi: 10.1115/1.4036148. PMC5444013.
34. Phisitkul P, Hosuru Siddappa V, Sittapairoj T, **Goetz JE**, Den Hartog BD, Femino JE. Cadaveric evaluation of dorsal intermetatarsal approach for plantar plate and lateral collateral ligament repair of the lesser metatarsophalangeal joints. Foot Ankle Int. 2017 Jul;38(7):791–796. doi: 10.1177/1071100717702460.
35. Permeswaran VN, Caceres AP, **Goetz JE**, Anderson DD, Hettrich CM. The effect of glenoid component version and humeral polyethylene liner rotation on subluxation and impingement in reverse shoulder arthroplasty. J Shoulder Elbow Surg. 2017;26(10):1718–1725. doi: 10.1016/j.jse.2017.03.027.
36. Townsend KC, Thomas-Aitken HD, Rudert MJ, Kern AM, Willey MC, Anderson DD, **Goetz JE**. Discrete element analysis is a valid method for computing joint contact stresses in the hip before and after acetabular fracture. J Biomech. 2018:67;9–17. PMC5767141.
37. Fitzpatrick E, **Goetz J**, Sittapairoj T, Siddappa VH, Femino JE, Phisitkul P. Effect of posterior malleolus fracture on syndesmosis reduction: A cadaveric study. J Bone Joint Surg Am. 2018 Feb 7;100(3):243–248.
38. Coleman MC, **Goetz JE**, Brouillette MJ, Seol D, Willey MC, Petersen EB, Anderson HD, Hendrickson NR, Compton J, Khorsand B, Morris AS, Salem AK, Fredericks DC, McKinley TO, Martin JA. Targeting mitochondrial responses to intra-articular fracture to prevent posttraumatic osteoarthritis. Sci Transl Med. 2018;10(427). pii: eaan5372. PMC5987523.
39. Seol D, Tochigi Y, Bogner AM, Song I, Fredericks DC, Kurriger GL, Smith SM, **Goetz JE**, Buckwalter JA, Martin JA. Effects of knockout of the receptor for advanced glycation end-products on bone mineral density and synovitis in mice with intra-articular fractures. J Orthop Res. 2018;36(9):2439–2449. PMC6128287.
40. Thomas-Aitken HD, Willey MC, **Goetz JE**. Joint contact stresses calculated for acetabular dysplasia patients using discrete element analysis are significantly influenced by the applied gait pattern. J Biomech. 2018;79:45–53. PMC6237088.
41. Scott E, Thomas-Aitken H, Glass N, Westermann R, **Goetz JE**, Willey M. Unaddressed cam deformity is associated with elevated joint contact stress after periacetabular osteotomy. J Bone Joint Surg Am. 2018;100(20):e131(1–7).
42. **Goetz JE**, Davidson NP, Rudert MJ, Szabo NE, Karam MD, Phisitkul P. Biomechanical comparison of syndesmotic repair techniques during external rotation stress. Foot Ankle Int. 2018;39(11):1345–1354.
43. Willey M, Holland T, Thomas-Aitken H, **Goetz JE**. Diagnosis and management of borderline hip dysplasia and acetabular retroversion. J Hip Surg. 2019;02(04):156–166. https://doi.org/10.1055/s-0038-1676307.
44. **Goetz JE**, Szabo NE, Rudert MJ, Karam MD, Phisitkul P. Achilles tension mitigates fibular malalignment measured in cadaveric studies of syndesmotic clamping. Foot Ankle Int. 2019;40(4):465–474.
45. Thomas-Aitken HD, **Goetz JE**, Dibbern KN, Westermann RW, Willey MC, Brown TS. Patient age and hip morphology alter calculated joint mechanics in patients with hip dysplasia. Clin Orthop Relat Res. 2019;477(5):1235–1245. PMC6494307.
46. **Goetz JE**, Rungprai C, Rudert MJ, Warth LC, Phisitkul P. Screw fixation of the syndesmosis alters joint contact characteristics in an axially loaded cadaveric model. Foot Ankle Surg. 2019 Oct;25(5):594-600. doi: 10.1016/j.fas.2018.05.003.
47. Yang L, Coleman MC, Hines MR, Kluz PN, Brouillette MJ, **Goetz JE**. Deep learning for chondrocyte identification in automated histological analysis of articular cartilage. Iowa Orthop J. 2019;39(2):1–8. PMC7047299.
48. Hajewski CJ. Duchman K, **Goetz J,** Femino J. Anatomic syndesmotic and deltoid ligament reconstruction with flexible implants: A technique description. Iowa Orthop J. 2019;39(1):21-27. PMID31413670.
49. Caceres AP, Permeswaran VN, **Goetz JE**, Hettrich CM, Anderson DD. The influence of different rotator cuff deficiencies on shoulder stability following reverse shoulder arthroplasty. Iowa Orthop J. 2019;39(1):63–68. PMC6604531.
50. **Goetz JE**, Vasseenon T, Tochigi Y, Amendola A, Femino JE. 3D talar kinematics during external rotation stress testing in hindfoot varus and valgus using a model of syndesmotic and deep deltoid instability. Foot Ankle Int. 2019 Jul;40(7):826–835.
51. **Goetz JE**, Phistikul P. Response to “Letter regarding: Achilles tension mitigates fibular malalignment measured in cadaveric studies of syndesmotic clamping.” Foot Ankle Int. 2019 Dec;40(12):1459–1460. doi: 10.1177/1071100719885341. PMID: 31801044.
52. Johnson JE, Brouillette MJ, Permeswaran PT, Miller BJ, **Goetz JE**. Simulated lesions representative of metastatic disease predict proximal femur fracture strength more accurately than idealized lesions. J Biomech. 2020 Jun 9;106:109825. doi: 10.1016/j.jbiomech.2020.109825.
53. Callaghan CM, Hasibuzzaman MM, Rodman SN, **Goetz JE**, Mapuskar KA, Petronek MS, Steinbach EJ, Miller BJ, Pulliam CF, Coleman MC, Monga VV, Milhem MM, Spitz DR, Allen BG. Neoadjuvant radiotherapy-related wound morbidity in soft tissue sarcoma: Perspectives for radioprotective agents. Cancers. 2020;12(8):2258. doi.org/10.3390/cancers12082258. PMC7465163.
54. Meyer AM, Aitken-Thomas HD, Brouillette MJ, Westermann RW, **Goetz JE**. Isolated changes in femoral version do not alter intra-articular contact mechanics in cadaveric hips. J Biomech. 2020 Aug 26;109:109891. doi: 10.1016/j.jbiomech.2020.109891. PMC7438600.
55. Bartschat NI, Fatemi N, Westermann R, Davison J, **Goetz JE**, Paulson AC, Willey MC. Changes in muscle volume and composition after treatment of hip dysplasia with periacetabular osteotomy. Iowa Orthop J. 2021 Dec;41(2):34-39. PMC8662926.
56. de Cesar Netto, C., Zhang, Z., Goncalves, M. L., Cychosz, C., Li, S., Duchman, K. R., **Goetz JE**, Femino, J. E., Chimenti, R. & Schon, L. C. (2020). Mechanical overload followed by consecutive collagenase injections: Developing a multifactorial and long-lasting animal model of induced Achilles tendinopathy. *Foot & Ankle Orthopaedics 5 (4) 2473011420S00034.* [DOI: 10.1177/2473011420S00034.](https://doi.org/10.1177/2473011420S00034)
57. Baumfeld, D., Silva, T. A., Li, S., Mansur, N. S., Dibbern, K. N., Cychosz, C., Lintz, F., Godoy-Santos, A. L., **Goetz JE**, Femino, J. E. & de Cesar Netto, C. (2020). Relationship between middle facet peritalar subluxation and the severity of flatfoot deformity. *Foot & Ankle Orthopaedics 5 (4) 2473011420S00022.* [DOI: 10.1177/2473011420S00022.](https://doi.org/10.1177/2473011420S00022)
58. de Cesar Netto, C., Lintz, F., **Goetz JE**, Dibbern, K., Giarola, I. C., Goroy-Santos, A. L., Guss, D., Femino, J. E., Anderson, D. D. & DiGiovanni, C. W. (2020). Automatic 3D volumetric analysis of the distal tibiofibular syndesmotic incisura. A case-control study of subtle chronic syndesmotic instability. *Foot & Ankle Orthopaedics 5 (4) 2473011420S00190.* [DOI: 10.1177/2473011420S00190.](https://doi.org/10.1177/2473011420S00190)
59. Willey MC, Westermann R, Glass N, **Goetz JE**, Thomas-Aitken HD, Fatemi N, Davison J, Miller A, Parker E, Fruehling C, McKinley T. Risk factors for composite failure of hip dysplasia treated with periacetabular osteotomy: A minimum 10-year follow-up. J Am Acad Orthop Surg; 2022 Apr 15;30(8):e690-e702. doi: 10.5435/JAAOS-D-21-00535. PMID: 35171882.
60. Parker EA, Meyer AM, **Goetz JE**, Willey MC, Westermann RW. Do relaxin levels impact hip injury incidence in women? A scoping review. Front. Endocrinol. 2022; 13:827512. doi: 10.3389/fendo.2022.827512. PMID:35185802.
61. Yang L, Martin JA, Brouillette MJ, Buckwalter JA, **Goetz JE**. Objective evaluation of chondrocyte density and organization after joint injury using convolutional neural networks. J Orthop Res. 2022; 40(11):2609-2619. doi: 10.1002/jor.25295. PMC9378771.
62. Johnson JE, **Goetz JE,** Brouillette MJ, Miller BJ. Finite element analysis potentially identifies nonessential prophylactic stabilization in femurs with metastatic disease. Proceedings of the Institution of Mechanical Engineers, Part H: Journal of Engineering in Medicine. 2022; 236(9):1297-1308. doi:[10.1177/09544119221109740](https://doi.org/10.1177/09544119221109740). PMID: **35787214**
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##### Theses, Books, Chapters, Reports, and Miscellaneous

1. Goetz JE. *Critical Aspects of Modeling Femoral Head Osteonecrosis -in the Emu.* Ph.D. Thesis, Department of Biomedical Engineering, The University of Iowa, 2008.
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**Abstracts/Symposia/Conference/Invited Presentations**

1. **Goetz JE**, Kurriger GL, Baer TE, Chung YY, Stoermer E, Pedersen DR, Martin JA, Conzemius MG, Robinson DA, Brown TD. Three dimensional mappings of histology data in the osteonecrotic emu femoral head. *College of Medicine/College of Public Health/VA Medical Center Research Week,* May 18–20, 2005, Iowa City, Iowa. Poster #69.
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3. **Goetz JE**, Brown TD. In vitro validation of thermal finite element analysis of cryoinsult delivery for emu femoral head necrosis. *XXth Congress of the International Society of Biomechanics and 29th Meeting of the American Society of Biomechanics,* July 31–August 5, 2005, Cleveland, Ohio. Poster #978.
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26. **Goetz JE**, Baer TE, Thedens DR, Kunze NM, Lawler EA, Brown TD. Measurements of MRI-apparent excursions and deformations of the carpal tunnel soft tissues. *56th Annual Meeting of the Orthopaedic Research Society,* March 6–9, 2010, New Orleans, Louisiana. Abstract ID: ORS2010-1224. Paper #209; Podium Presentation: Session 47 Hand and Wrist.
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31. Main EK, **Goetz JE**, Rudert MJ, Goreham-Voss CM, Brown TD. Optimization-based assessment of material properties for the transverse stiffness of digital flexor tendons and the median nerve. *The University of Iowa College of Engineering’s Research Open House,* April 8, 2010, Iowa City, Iowa. Abstract and Poster Presentation.
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50. Sullivan JP, **Goetz JE**, Phisitkul P, Marsh JL. Accurate screw placement for displaced intraarticular calcaneus fracture. *American Academy of Orthopaedic Surgeons 2013 Annual Meeting,* March 19–23, 2013, Chicago, Illinois. Poster Presentation #P466–252.
51. Ebinger T, **Goetz JE**, Dolan L, Phisitkul PP. Evaluation of clinical measurements of the Ankle Syndesmosis with a 3D model. *American Academy of Orthopaedic Surgeons 2013 Annual Meeting,* March 19–23, 2013, Chicago, Illinois. Paper #555.
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53. Tennant JN, Rungprai C, Pizzimenti M, **Goetz J**, Phisitkul P, Femino JE, Amendola A. Risks to the blood supply of the talus after four methods of total ankle arthroplasty: A cadaveric injection study. *Annual Meeting of American Orthopaedic Foot and Ankle Society,* ePoster. July 16–20, 2013, Hollywood, Florida.
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57. **Goetz JE**, Martin JA, Rudert MJ, Roberts NH, Fredericks DC, Tochigi Y. Natural history of post-traumatic osteoarthritis in a large animal model of intra-articular fracture. *Extremity War Injuries Symposium IX,* February 10–12, 2014, Washington DC. Poster 10.
58. Tennant J, Rungprai C, Pizzimenti MA, **Goetz JE**, Phisitkul PP, Femino JE, Amendola A. Risks to the blood supply of the talus after four methods of total ankle arthroplasty: a cadaveric injection study. *American Academy of Orthopaedic Surgeons 2014 Annual Meeting,* March 11–15, 2014, New Orleans, Louisiana. Paper #710. Podium Presentation – Foot and Ankle Track.
59. Westermann R, Rungprai C, **Goetz JE**, Amendola A, Phisitkul PP. Corrective effect of suture-button fixation on iatrogenic syndesmotic malreduction: A cadaveric study. *American Academy of Orthopaedic Surgeons 2014 Annual Meeting,* March 11–15, 2014, New Orleans, Louisiana. Paper #67. Podium Presentation – Trauma Track.
60. Roberts NH, Martin JA, Fredericks DC, Tochigi Y, **Goetz JE**. Fluctuations of synovial fluid inflammatory cytokine concentrations in an animal model of intra-articular fracture. *60th Annual Meeting of the Orthopaedic Research Society,* March 15–18, 2014, New Orleans Louisiana. Poster #PS1-0342.
61. Permeswaran V, Anderson DD, **Goetz JE**, Hettrich CM. Understanding the mechanical tradeoffs in changing centers of rotation for reverse shoulder arthroplasty design. *60th Annual Meeting of the Orthopaedic Research Society,* March 15–18, 2014, New Orleans Louisiana. Poster #PS2-1861.
62. Warth L, **Goetz JE**, Rungprai C, Phisitkul P. Increasing stiffness of syndesmotic fixation causes abnormal talar displacement during simulated weightbearing in a cadaveric model. *32nd Annual Meeting of the Mid-America Orthopaedic Association,* April 23–27, 2014, San Antonio, Texas. Poster #26.
63. Westermann R, Rungprai C, **Goetz JE**, Amendola A, Phisitkul PP. Corrective effect of suture-button fixation on iatrogenic syndesmotic malreduction: A cadaveric study. *32nd Annual Meeting of the Mid-America Orthopaedic Association*, April 23–27, 2014, San Antonio, Texas. Poster #69.
64. Rungprai C, Arunakul M, **Goetz JE**, Femino JE, Amendola A, Phisitkul P. Foot and ankle radiographic parameters: Validity and reproducibility of biplane imaging system versus conventional radiography. *32nd Annual Meeting of the Mid-America Orthopaedic Association,* April 23–27, 2014, San Antonio, Texas. Paper #201.
65. Vaseenon T, **Goetz JE**, Tochigi Y, Phisitkul P, Anderson DD, Amendola A, Femino JE. 3-dimensional analysis of ankle instability with external rotation stress test in two hindfoot positions using CT: A cadaveric study. *AOA/COA Combined Meeting*, June 18–21, 2014, Montreal, Quebec, Canada. Abstract#953, Poster #092.
66. Vaseenon T, **Goetz JE**, Phisitkul P, Tochigi Y, Amendola A, Femino JE. 3-dimensional analysis of ankle instability with external and internal rotation stress test in varus and valgus: A cadaveric study. *IFFAS/AOFAS Combined Meeting*, September 19–23, 2014, Chicago, Illinois. Poster.
67. Rungprai C, **Goetz JE**, Arunakul M, Gao Y, Femino JE, Amendola A, Phisitkul P. Foot and ankle radiographic parameters: validity and reproducibility of biplane imaging system versus conventional radiography. *IFFAS/AOFAS Combined Meeting*, September 19–23, 2014, Chicago, Illinois. Poster.
68. Coleman MC, Martin JA, Fredericks DC, Bergh MS, **Goetz JE**. Intraarticular administration of N-acetylcysteine and glycyrrhizin alleviates acute oxidative stress following intraarticular fracture. *61th Annual Meeting of the Orthopaedic Research Society,* March 28–31, 2015, Las Vegas Nevada. Poster 1200.
69. Duchman KR, **Goetz JE**, Uribe B, Amendola A, Barber J, Malandra A, Hettrich CM. The effect of recombinant human parathyroid hormone (rhPTH) on tendon-to-bone healing in a rat rotator cuff model. *61th Annual Meeting of the Orthopaedic Research Society,* March 28–31, 2015, Las Vegas Nevada. Poster 1378.
70. Permeswaran VN, Anderson DD, **Goetz JE,** Hettrich CM. A finite element analysis of mechanical trade-offs encountered in changing centers of rotation in reverse shoulder arthroplasty. *61th Annual Meeting of the Orthopaedic Research Society,* March 28–31, 2015, Las Vegas Nevada. Poster 1841.
71. Duchman KR, **Goetz JE**, Amendola A, Uribe B, Malandra A, Barber J, Hettrich CM. The effect of recombinant human parathyroid hormone (rhPTH) on tendon-to-bone healing in a rat rotator cuff model. *33rd Annual Meeting of the Mid-America Orthopaedic Association,* April 22–26, 2015, Hilton Head, South Carolina. Paper 098.
72. Townsend KC, **Goetz JE,** Tantavisut S. McKinley, TO, Willey MC. The effects of periacetabular osteotomy-induced changes in joint mechanics on short-term patient outcomes. *AAOS Annual Meeting*, March 1–5, 2016, Orlando, Florida. Paper #250.
73. Rungprai C, **Goetz JE**, Phisitkul P. Increasing stiffness of syndesmosis causes abnormal talar displacement and joint contact in a cadaveric model. *AAOS Annual Meeting,* March 1–5, 2016, Orlando, Florida. Poster #210.
74. Duchman K, **Goetz JE**, Amendola A, Malandra A. Uribe-Echevarria B, Barber J, Hettrich CM. Recombinant parathyroid hormone improves early load to failure in a rat rotator cuff repair model. *AAOS Annual Meeting,* March 1–5, 2016, Orlando, Florida. Paper #021.
75. Townsend KC, **Goetz JE**, Tantavisut S, McKinley TO, Willey MC. Evaluating the effects of periacetabular osteotomy-induced changes in joint mechanics on short-term patient outcomes. *62nd Annual Meeting of the Orthopaedic Research Society,* March 5–8, 2016, Orlando, Florida. Paper 211.
76. Heckelsmiller DJ, Rudert MJ, Pedersen DR, **Goetz JE**. Changes in joint contact mechanics after an anterior partial meniscectomy in a large quadrupedal animal model of osteoarthritis. *62nd Annual Meeting of the Orthopaedic Research Society,* March 5–8, 2016, Orlando, Florida. Poster 488.
77. **Goetz JE**, Cole E, Petersen EB, Kurriger G, Fredericks DC, Martin JA. Inflammation following an intra-articular fracture in a large animal model of PTOA. *62nd Annual Meeting of the Orthopaedic Research Society,* March 5–8, 2016, Orlando, Florida. Poster 580.
78. Coleman MC, **Goetz JE**, Willey MC, Petersen EB, Fredericks DC, Martin JA. Osteoarthritis in porcine intraarticular fracture model reveals mitochondrial features similar to human disease. *62nd Annual Meeting of the Orthopaedic Research Society,* March 5–8, 2016, Orlando, Florida. Poster 1359.
79. Heckelsmiller DJ, Baer TE, **Goetz JE**, Pedersen DR, Fredericks DC, Rudert MJ. A handheld device for creating cartilage blunt impact injuries. *62nd Annual Meeting of the Orthopaedic Research Society,* March 5–8, 2016, Orlando, Florida. Poster 1361.
80. **Goetz JE**, Ries ZG, Dowdle SB, Miller BJ. Accuracy of metastatic lesion volume calculation from different imaging modalities. *62nd Annual Meeting of the Orthopaedic Research Society,* March 5–8, 2016, Orlando, Florida. Poster 1646.
81. Townsend KC, Rudert MJ, Kern AM, Willey MC, Anderson DD, **Goetz JE**. Validation of hip joint contact stress computed using discrete element analysis. *62nd Annual Meeting of the Orthopaedic Research Society,* March 5-8, 2016, Orlando, Florida. Poster 1857.
82. Permeswaran VN, Anderson DD, Caceres A, **Goetz JE**, Hettrich CM. The effect of glenoid version on range of motion and subluxation in reverse shoulder arthroplasty. *62nd Annual Meeting of the Orthopaedic Research Society,* March 5–8, 2016, Orlando, Florida. Poster 2012.
83. Pedersen DR, Thedens DR, Heckelsmiller DJ, Rudert MJ, Fredericks DC, **Goetz JE**. Longitudinal MRI reveals osseous response progression after traumatic injury. *62nd Annual Meeting of the Orthopaedic Research Society,* March 5–8, 2016, Orlando, Florida. Poster 2220.
84. Phisitkul P, **Goetz JE**, Fitzpatrick E, Sittapairoj T, Siddappa VH, Hartog BD, Femino J. Effect of posterior malleolus fracture on syndesmosis reduction. *American Orthopaedic Foot & Ankle Society Annual Meeting 2016*, July 20–23, 2016, Toronto, Ontario, Canada. ePoster 2237.
85. **Goetz JE**, Rungprai C, Phisitkul P. Rigid syndesmotic fixation alters joint contact mechanics and talar kinematics. *American Orthopaedic Foot & Ankle Society Annual Meeting 2016,* July 20–23, 2016, Toronto, Ontario, Canada. ePoster 2309.
86. Heckelsmiller DJ, Laughlin BJ, Eldine MS, Thedens DR, Pedersen DR, Fredericks DC, **Goetz JE**. Accurately quantifying cartilage using microCT and magnetic resonance imaging. *Midwest American Society of Biomechanics Regional Meeting,* February 23–24, 2017, Grand Rapids, Michigan. Podium Presentation.
87. Permeswaran P, Miller BJ, **Goetz JE**. Mechanics based fracture-risk under gait cycle loading correlates poorly with high Mirels’ scores in metastatic lesions to the proximal femur. *Midwest American Society of Biomechanics Regional Meeting,* February 23–24, 2017, Grand Rapids, Michigan. Podium Presentation.
88. Thomas HD, Dibbern KN, Willey MC, **Goetz JE**. Evaluating the effects of simulating pathological versus normal gait on hip joint mechanics in dysplasia patients. *Midwest American Society of Biomechanics Regional Meeting,* February 23–24, 2017, Grand Rapids, Michigan. Podium Presentation.
89. Femino JE, Anthony C, **Goetz JE**, Phisitkul P, Schumer R. Effect of progressively larger lateral column lengthening calcaneal osteotomy on radiographic measurements of foot alignment. *AAOS Annual Meeting,* March 14–18, 2017, San Diego, California. Podium Presentation.
90. Kern A, Anthony C, **Goetz J**, Schumer R, Kruze AJ, Femino JE. Are measures of hindfoot alignment sensitive to pathology and correction? *63rd Annual Meeting of the Orthopaedic Research Society,* March 19–22, 2017, San Diego, California. Poster 2139.
91. Caceres AP, Permeswaran VN, **Goetz JE**, Hettrich CM, Anderson DD. The influence of different rotator cuff deficiencies on shoulder stability following reverse shoulder arthroplasty. *63rd Annual Meeting of the Orthopaedic Research Society,* March 19–22, 2017, San Diego, California. Poster 1107.
92. Permeswaran VN, **Goetz JE**, Caceres AP, Anderson DD, Hettrich CM. The Effect of Polyethylene Rotation on Impingement and Instability in Reverse Shoulder Arthroplasty. *63rd Annual Meeting of the Orthopaedic Research Society,* March 19–22, 2017, San Diego, California. Poster 1124.
93. Permeswaran VN, **Goetz JE**, Caceres AP, Anderson DD, Hettrich CM. The influence of critical shoulder angle on glenohumeral joint load in reverse shoulder arthroplasty. *63rd Annual Meeting of the Orthopaedic Research Society,* March 19–22, 2017, San Diego, California. Poster 1148.
94. Hall JR, Permeswaran VN, Caceres AP, Anderson DD, **Goetz JE**, Hettrich CM. Determining return of scapulohumeral rhythm in patients after reverse shoulder arthroplasty. *63rd Annual Meeting of the Orthopaedic Research Society,* March 19–22, 2017, San Diego, California. Poster 2074.
95. Heckelsmiller D, Laughlin B, Eldine MS, Thedens D, Pedersen D, Fredericks D, **Goetz J**. MRI Reveals focal cartilage defects after traumatic joint injury. *63rd Annual Meeting of the Orthopaedic Research Society,* March 19–22, 2017, San Diego, California. Poster 1388.
96. Permeswaran P, Miller BJ, **Goetz J**. Mechanics based fracture-risk correlates poorly with Mirels’ score in metastatic lesions to the proximal femur. *63rd Annual Meeting of the Orthopaedic Research Society,* March 19–22, 2017, San Diego, California. Poster 747.
97. Coleman MC, **Goetz JE**, Brouillette MJ, Willey MC, Seol D, Petersen EB, Khorsand B, Salem AK, Fredericks DC, McKinley TO, Martin JA. Complex I inhibition after intra-articular fracture prevents rapid progression of osteoarthritis in a porcine model. *63rd Annual Meeting of the Orthopaedic Research Society,* March 19–22, 2017, San Diego, California. Poster 553.
98. Infelt H, Rudert MJ, Huber E, Miller BJ, **Goetz JE**. The effects of fractionated irradiation on bone morphology and strength. *63rd Annual Meeting of the Orthopaedic Research Society,* March 19–22, 2017, San Diego, California. Poster 0744.
99. Baer T, Frisbie R, Willey M, **Goetz J**. Development of a simplified ankle distractor. *16th Annual Design of Medical Devices Conference,* April 10–13, 2017, Minneapolis, Minnesota. Accepted, Paper DMD2017-3438. Poster Presentation.
100. Coleman MC, **Goetz JE**, Brouillette MJ, Seol D, Willey MC, Petersen EB, Fredericks DC, McKinley TO, Martin JA. Complex I inhibition after intra-articular fracture prevents rapid progression of osteoarthritis in a porcine model. *2017 OARSI World Congress on Osteoarthritis,* April 27–30, 2017, Las Vegas, Nevada. Poster Presentation.
101. Thedens DR, Heckelsmiller DJ, Laughlin BJ, Saad Eldine M, Pedersen DR, Fredericks DC, **Goetz JE**. T1rho MRI assessment of cartilage in a large animal model of traumatic joint injury. *2017 OARSI World Congress on Osteoarthritis,* April 27–30, 2017, Las Vegas, Nevada. Poster Presentation.
102. Thomas HD, Dibbern KN, Willey MC, **Goetz JE**. Gait effects on joint mechanics and clinical outcomes in hip dysplasia patients. *41st Annual Meeting of the American Society of Biomechanics,* August 8–11, 2017, Boulder, Colorado. Podium Presentation.
103. Permeswaran VN, Rudert MJ, Anderson DD, Hettrich C, **Goetz JE**. The material properties of stabilizing rotator cuff tendons relevant in reverse shoulder arthroplasty. *41st Annual Meeting of the American Society of Biomechanics,* August 8–11, 2017, Boulder, Colorado. Poster Presentation.
104. Permeswaran VN, **Goetz JE**, Anderson DD. A finite element modeling approach to studying instability in reverse shoulder arthroplasty. *41st Annual Meeting of the American Society of Biomechanics,* August 8–11, 2017, Boulder, Colorado. Poster Presentation.
105. Permeswaran VN, Hall JR, Caceres AP, Anderson DD, **Goetz JE**, Hettrich CM. Determining return of scapulohumeral rhythm in patients after reverse shoulder arthroplasty. *41st Annual Meeting of the American Society of Biomechanics,* August 8–11, 2017, Boulder, Colorado. Poster Presentation.
106. **Goetz J**, Davidson N, Rudert MJ, Caceres A, Karam M, Phisitkul P. A biomechanical comparison of syndesmotic repair techniques during external rotation stress. *41st Annual Meeting of the American Society of Biomechanics,* August 8–11, 2017, Boulder, Colorado. Poster Presentation.
107. Permeswaran P, Miller BJ, **Goetz JE**. Localized fracture risk under gait cycle loading correlates poorly with high Mirels’ scores in metastatic lesions to the proximal femur. *41st Annual Meeting of the American Society of Biomechanics,* August 8–11, 2017, Boulder, Colorado. Poster Presentation.
108. Thomas HD, Willey MC, Westermann R, **Goetz JE**. Different gait patterns affect hip joint mechanics in dysplasia patients following periacetabular osteotomy. *9th International Society for Hip Arthroscopy (ISHA) Annual Scientific Meeting,* October 12–14, 2017, Santiago, Chile. Podium Presentation
109. Scott E, Thomas HD, Dibbern K, Fruehling C, **Goetz JE**, Westermann R, Willey MC. The association between CAM deformity and increased joint contact stress following periacetabular osteotomy for dysplasia. *9th International Society for Hip Arthroscopy (ISHA) Annual Scientific Meeting,* October 12–14, 2017, Santiago, Chile. Podium Presentation.
110. **Goetz JE**, Davidson N, Rudert MJ, Szabo N, Karam M, Phisitkul P. A biomechanical comparison of syndesmotic repair techniques during external rotational stress. *AAOS 2018 Annual Meeting,* March 6–10, 2018, New Orleans, Louisiana. Paper Presentation.
111. Sitton S, Thomas HD, Fruehling C, **Goetz JE**, Westermann R, Willey MC. Contact mechanics are significantly altered in dysplastic hip joints compared to radiographically normal hip joints. *AAOS 2018 Annual Meeting,* March 6–10, 2018, New Orleans, Louisiana. Paper Presentation.
112. Thomas HD, Willey MC, **Goetz JE**. Gait pattern influences joint contact stress changes in dysplasia patients after periacetabular osteotomy. *AAOS 2018 Annual Meeting,* March 6–10, 2018, New Orleans, Louisiana. Poster Presentation.
113. **Goetz JE**, Szabo NE, Rudert MJ, Karam MD, Phisitkul P. Achilles tension mitigates malpositioning measured in cadaveric studies of syndesmotic clamping. *64th Annual Meeting of the Orthopaedic Research Society,* March 10–13, 2018, New Orleans, Louisiana. Poster Presentation.
114. Heck CR, Lauters AM, Watson NA, Fredericks DC, **Goetz JE**. Delayed fracture fixation does not cause additional limb dysfunction in a large animal model of post-traumatic osteoarthritis. *64th Annual Meeting of the Orthopaedic Research Society,* March 10–13, 2018, New Orleans, Louisiana. Poster Presentation.
115. Heckelsmiller D, Femino EL, Watson NA, Heck CR, Fredericks DC, **Goetz JE**. Cartilage thickness and composition do not vary with time to fixation or distraction treatment in the short-term following intra-articular fracture of the distal tibia. *64th Annual Meeting of the Orthopaedic Research Society,* March 10–13, 2018, New Orleans, Louisiana. Poster Presentation.
116. Thomas HD, Dibbern KD, Willey MC, **Goetz JE**. Age influences joint mechanics and clinical outcomes in dysplasia patients following periacetabular osteotomy. *64th Annual Meeting of the Orthopaedic Research Society,* March 10–13, 2018, New Orleans, Louisiana. Poster Presentation.
117. Thomas HD, Dibbern KN, Holland TC, CarlLee TL, Rao K, Marsh JL, Willey MC, **Goetz JE**, Anderson DD. Joint contact stress correlates with clinical measures of osteoarthritis in surgically reduced acetabular fractures. *64th Annual Meeting of the Orthopaedic Research Society,* March 10–13, 2018, New Orleans, Louisiana. Poster Presentation.
118. Thomas HD, Femino E, Willey MC, **Goetz JE**. Medialization of the acetabular center of rotation following periacetabular osteotomy is most predictive of changes in hip contact stress. *64th Annual Meeting of the Orthopaedic Research Society,* March 10–13, 2018, New Orleans, Louisiana. Paper Presentation.
119. Thomas HD, Dibbern KN, Holland TC, Marsh JL, Willey MC, **Goetz JE**, Anderson DD. Elevated contact stress after acetabular fracture correlates with development of radiographic OA. *2018 World Congress on Osteoarthritis,* April 26–29, 2018, Liverpool, United Kingdom. Poster Presentation.
120. **Goetz JE**. *Funding beyond the NIH: Opportunities within the Department of Defense.* Orthopedic Research Society Seminar.
121. Dibbern KN, Holland TC, Thomas-Aitken HD, CarlLee T, Willey MC, **Goetz JE**, Marsh JL, Anderson DD. Contact stress over-exposure correlates with OA development in acetabular fractures. *42nd Annual Meeting of the American Society of Biomechanics,* August 8–11, 2018, Rochester, Minnesota. Podium Presentation. 2018 – Clinical Biomechanics Award.
122. Heck CR, Lauters AM, Watson NA, Fredericks DC, **Goetz JE**. Delayed time to fixation of an intra-articular fracture does not cause additional limb dysfunction in a large animal model of post-traumatic osteoarthritis. *42nd Annual Meeting of the American Society of Biomechanics,* August 8–11, 2018, Rochester, Minnesota.
123. Heck CR, Lauters AM, Watson NA, Fredericks DC, **Goetz JE**. Quantifying changes in gait following intra-articular fracture in a large animal model of post-traumatic osteoarthritis. *42nd Annual Meeting of the American Society of Biomechanics,* August 8–11, 2018, Rochester, Minnesota.
124. Mattioli D, Buckwalter JA, Lawler EA, **Goetz JE**. Dynamic ultrasound analysis of median nerve may differentiate clinically significant carpal tunnel syndrome. *42nd Annual Meeting of the American Society of Biomechanics,* August 8–11, 2018, Rochester, Minnesota.
125. Szabo N, Femino JE, **Goetz JE**. Progressive lateral column lengthening in a cadaveric flatfoot model increases individual bone rotations in the midfoot and hindfoot. *42nd Annual Meeting of the American Society of Biomechanics,* August 8–11, 2018, Rochester, Minnesota. Finalist for the Undergraduate Student Poster Competition.
126. Thomas HD, Willey MC, **Goetz JE**. Applied gait pattern influences spatial changes in contact stress calculated for dysplasia patients following periacetabular osteotomy. *42nd Annual Meeting of the American Society of Biomechanics,* August 8–11, 2018, Rochester, Minnesota.
127. Buckwalter J, Mattioli D, Lawler E, **Goetz J**. Dynamic ultrasound analysis of median nerve may differentiate clinically significant carpal tunnel. *73rd Annual Meeting of the American Society for Surgery of the Hand (ASSH),* September 13–15, 2018, Boston, Massachusetts. iPoster Presentation.
128. Sitton S, Thomas-Aitken H, Fruehling D, **Goetz JE**, Westermann RW, Willey MC. PAO improves but does not normalize joint mechanics in patients with hip dysplasia. *International Society for Hip Arthroplasty (ISHA) Annual Scientific Meeting,* October 4–6, 2018, Melbourne, Australia. Podium Presentation.
129. Thomas-Aitken H, Willey MC, **Goetz JE**. Only medialization of the acetabular center of rotation following periacetabular osteotomy significantly alters joint contact stress in dysplastic hips. *International Society for Hip Arthroplasty (ISHA) Annual Scientific Meeting,* October 4–6, 2018, Melbourne, Australia. Podium Presentation.
130. Thomas-Aitken H, Dibbern KN, Brown TS, Westermann RW, Willey MC, **Goetz JE**. Patient age and hip morphology affect joint mechanics and clinical outcomes following periacetabular osteotomy. *International Society for Hip Arthroplasty (ISHA) Annual Scientific Meeting,* October 4–6, 2018, Melbourne, Australia. Podium Presentation.
131. Willey MC, Westermann RW, Thomas H, Brown T, Scott E, Sitton S, Holland S, **Goetz JE**. Clinical and biomechanical outcomes of patients with borderline hip dysplasia treated with PAO. *International Society for Hip Arthroplasty (ISHA) Annual Scientific Meeting,* October 4–6, 2018, Melbourne, Australia. Podium Presentation.
132. Thomas-Aitken H, Willey MC, Westermann RW, Brown T, Scott E, **Goetz, JE**. Do typical radiographic measurements of hip dysplasia predict changes in joint mechanics after PAO? *International Society for Hip Arthroplasty (ISHA) Annual Scientific Meeting,* October 4–6, 2018, Melbourne, Australia. Poster Presentation.
133. **Goetz JE**, Heck CR, Petersen EB, Fredericks DC, Willey MC. Delayed fixation of intra-articular fractures increased cartilage degeneration in a large animal model. *34th Annual Meeting of the Orthopaedic Trauma Association,* October 17–20, 2018, Orlando, Florida. Basic Science: Non-Bone Issues: Paper #12 (Podium Presentation).
134. Thomas HD, Dibbern KN, CarlLee TL, Marsh JL, Willey MC, **Goetz JE**, Anderson DD. Elevated joint contact stress is associated with radiographic measures of osteoarthritis in operatively treated acetabular fractures at two years. *34th Annual Meeting of the Orthopaedic Trauma Association,* October 17–20, 2018, Orlando, Florida. Podium Presentation.
135. Dibbern KN, Thomas-Aitken H, CarlLee T, Willey M, **Goetz J**, Marsh JL, Anderson DD. Contact stress over-exposure correlates with PTOA risk in acetabular fractures. *65th Annual Meeting of the Orthopaedic Research Society,* February 2–5, 2019, Austin, Texas. Poster Presentation.
136. Bartschat NI, Thomas-Aitken HD, Clohisy JC, Willey MC, **Goetz JE**, Westermann RW. Cartilage degeneration is associated with increased joint contact stress in patients with hip dysplasia. *65th Annual Meeting of the Orthopaedic Research Society,* February 2–5, 2019, Austin, Texas. Poster Presentation.
137. Yang L, Seol D, Fredericks D, Coleman M, Martin J, **Goetz J**. Creation of differing levels of homogeneous proteoglycan depletion in cartilage for correlating proteoglycan content and micro-CT intensity. *65th Annual Meeting of the Orthopaedic Research Society,* February 2–5, 2019, Austin, Texas. Poster Presentation.
138. Thomas-Aitken HD, Westermann RW, Bartschat NI, Clohisy JC, Willey MC, **Goetz JE**. Increased relative femoral retroversion increases joint contact stresses in patients with hip dysplasia. *65th Annual Meeting of the Orthopaedic Research Society,* February 2–5, 2019, Austin, Texas. Poster and e-Poster Presentations.
139. Thomas-Aitken HD, Westermann RW, Bartschat NI, Clohisy JC, Willey MC, **Goetz JE**. Femoral osteochondroplasty in conjunction with periacetabular osteotomoy reduces joint contact stresses in patients with large cam deformities. *64th Annual Meeting of the Orthopaedic Research Society,* February 2–5, 2019, Austin, Texas. Poster Presentation.
140. Blaylock C, Femino JE, Chinnakkannu K, **Goetz JE**. Correcting flat feet by reconstructing the spring ligament using fiber tape. *The University of Iowa College of Engineering Research Open House,* April 11, 2019, Iowa City, Iowa. Poster Presentation.
141. **Goetz JE**, Thomas-Aitken HD, Westermann RW, Willey MC. Intra-articular contact mechanics of hip dysplasia and surgical hip preservation procedures. *XXVII Congress of the International Society of Biomechanics (ISB 2019), held in conjunction with the 43rd Annual Meeting of the American Society of Biomechanics (ASB 2019),* July 31–August 4, 2019, Calgary, Canada. Podium Presentation.
142. Willey M, Heck C, Coleman M, Petersen E, Fredericks D, **Goetz J**. Articulated joint distraction 12-weeks after an intra-articular fracture induces cartilage and intra-articular soft tissue formation in a minipig model. *2019 Military Health System Research Symposium,* August 19–22, 2019, Kissimmee, Florida. Poster Presentation.
143. **Goetz JE**, Thomas-Aitken HD, Willey MC. Joint contact stresses calculated for dysplasia patients using discrete element analysis are significantly influenced by the applied gait pattern. *Second International Hip Dysplasia Symposium: Solving a Worldwide Problem,* September 11, 2019, New York, New York. Invited Presentation.
144. **Goetz JE**, Thomas-Aitken HD, Westermann RW, Willey MC. Optimal correction and lessons learned from discrete element analysis. *Second International Hip Dysplasia Symposium: Solving a Worldwide Problem,* September 12, 2019, New York, New York. Invited Presentation.
145. Thomas-Aitken H, Bartschat NI, Clohisy JC, Willey MC, Westermann RW, **Goetz JE**. Cartilage degeneration is associated with increased joint contact stress in patients with hip dysplasia. *International Society for Hip Arthroplasty (ISHA) Annual Scientific Meeting,* October 17–19, 2019, Madrid, Spain. ePoster Presentation.
146. Thomas-Aitken H, **Goetz JE**, Bartschat NI, Clohisy JC, Willey MC, Westermann RW. Incorporating patient-specific femoral version into computational models of hip dysplasia augments the biomechanical improvement detected after surgical correction. *International Society for Hip Arthroplasty (ISHA) Annual Scientific Meeting,* October 17–19, 2019, Madrid, Spain. ePoster Presentation.
147. Thomas-Aitken H, **Goetz JE**, Bartschat NI, Clohisy JC, Willey MC, Westermann RW. Concurrent periacetabular osteotomy and femoral osteochondroplasty improves localized joint contact stress abnormalities in patients with head-neck offset deformities. *International Society for Hip Arthroplasty (ISHA) Annual Scientific Meeting,* October 17–19, 2019, Madrid, Spain. ePoster Presentation.
148. Yang L, Coleman M, Blaylock C, **Goetz J**. Application of an imaging processing workflow to quantify live-cell density in confocal microscopy images of degenerative porcine articular cartilage. *66th Annual Meeting of the Orthopaedic Research Society,* February 8–11, 2020, Phoenix, Arizona. Poster Presentation.
149. Thomas-Aitken H, Bartschat N, Clohisy J, Willey M, Westermann R, **Goetz J**. Cartilage degeneration is associated with increased joint contact stress in patients with hip dysplasia. Abstract ID#5472. *American Academy of Orthopaedic Surgeons 2020 Annual Meeting,* March 24-28, 2020, Orlando, Florida. Paper #146, Paper Presentation Session: Sports Medicine I. (Virtual conference due to COVID-19).
150. Thomas-Aitken H, **Goetz JE**, Bartschat N, Clohisy JC, Willey MC, Westermann RW. Incorporating patient-specific femoral version into computational models of hip dysplasia augments the biomechanical improvement detected after surgical correction. *American Academy of Orthopaedic Surgeons 2020 Annual Meeting,* March 24-28, 2020, Orlando, Florida. Paper #147. Paper Presentation Session: Sports Medicine I. (Virtual conference due to COVID-19).
151. Kluz PN, Yang L, **Goetz JE**, Coleman MC. Time- and depth-dependent changes to articular cartilage mitochondrial content occur during the 48 hours after injury. *Osteoarthritis Research Society International 2020 World Congress,* April 30–May 3, 2020, Vienna, Austria. Poster Presentation. (Conference canceled due to COVID-19).
152. Szabo N, Kluz PN, Coleman MC, **Goetz JE**. Finite element modeling of osteochondral explant impacts predicts locations of cell death. *Osteoarthritis Research Society International 2020 World Congress,* April 30–May 3, 2020, Vienna, Austria. Poster Presentation. (Conference canceled due to COVID-19).
153. de Cesar Netto C, Zhang Z, Goncalves ML, Cychosz C, Li S, Duchman K, **Goetz JE**, Femino JE, Chimenti R, Schon LC. Mechanical overload followed by consecutive collagenase injections: Developing a multifactorial and long-lasting animal model of induced achilles tendinopathy. *AOFAS Annual Meeting 2020,* September 9–12, 2020, San Antonio, Texas. Podium Presentation. Foot & Ankle Orthopaedics. 2020;5(4): 2473011420S00034.
154. de Cesar Netto C, Lintz F, **Goetz JE**, Dibbern K, Giarola IC, Godoy-Santos AL, Guss D, Femino JE, Anderson DD, DiGiovanni CW. Automatic 3D volumetric analysis of the distal tibiofibular syndesmotic incisura. A case-control study of subtle chronic syndesmotic instability. *AOFAS Annual Meeting 2020,* September 9–12, 2020, San Antonio, Texas. Poster Presentation. Foot & Ankle Orthopaedics. 2020. 5(4);2473011420S00190.
155. Baumfeld D, Silva TA, Li S, Mansur N, Dibbern K, Cychosz C, Lintz F, Godoy-Santos AL, **Goetz JE**, Femino JE, de Cesar Netto C. Relationship between middle facet peritalar subluxation and the severity of flatfoot deformity. *AOFAS Annual Meeting 2020,* September 9–12, 2020, San Antonio, Texas. Podium Presentation. Foot & Ankle Orthopaedics. 2020;5(4):2473011420S00022.
156. **Goetz JE**. Computational simulations to predict joint stresses. Redefining Hip Dysplasia and Instability Mechanics Using Biomechanical Metrics Workshop. *2021 Annual Meeting of the Orthopedic Research Society*. February 12-16, 2021. Live Virtual Meeting. Invited Workshop Talk.
157. Hajewski C, **Goetz JE**, Duchman KR, Femino JE. A biomechanical investigation on the effects of deep deltoid ligament repair combined with flexible and rigid syndesmotic fixation. *2021 AOFAS Annual Meeting,* September 22–25, 2021, Charlotte, North Carolina. Audio Poster Presentation.
158. Paulson A, Miller A, Parker EA, **Goetz JE**, Davison J, Willey MC, Glass NA, Westermann RW, McKinley TO. Minimum 10-year follow up of hip dysplasia treated with periacetabular osteotomy. *American Academy of Orthopaedic Surgeons 2021 Annual Meeting,* August 31–September 3, 2021, San Diego, California. Podium Presentation. Session: Pediatrics III; Paper 488.
159. Johnson JE, **Goetz JE**, Brouillette MJ, Miller BJ. Clinical metrics of fracture risk correlate poorly with computationally derived mechanical outcomes in femurs with metastatic disease. *2021 Annual Meeting of the Musculoskeletal Tumor Society*, October 6-8, 2021. Baltimore MD. Podium Presentation. Paper 49.
160. Liman S, Brouillette MJ, Yang L, **Goetz JE**, Coleman MC. Chondrocyte glutathione oxidation is highest at sites of high strain after articular fracture. *28th Annual Meeting of the Society for Redox Biology and Medicine*. November 15-18, 2021. Virtual Poster 130. <https://doi.org/10.1016/j.freeradbiomed.2021.12.142>.
161. Parker EA, Meyer AM, **Goetz JE**, Willey MC, Westermann RW. Relaxin levels and hip injuries in women: A scoping review. *2021 International Society for Hip Arthroplasty (ISHA) Annual Scientific Meeting*. December 11-14, 2021. Las Vegas NV. E-poster.
162. Thomas-Aitken H, Westermann R, Clohisy J, Willey M, **Goetz JE.** Chronic contact stress exposure elevations are associated with intra-articular cartilage damage in patients with concurrent hip dysplasia and femoroacetabular impingement. *International Society for Hip Arthroscopy (ISHA) Annual General Meeting & Academic Sessions*, November 13, 2021.
163. Johnson JE, **Goetz JE**, Brouillette MJ, Miller BJ. Mechanical effects of virtual prophylactic stabilization in femurs with metastatic disease. *67th Annual Meeting of the Orthopaedic Research Society*. February 4-8, 2022. Tampa, FL. Poster Presentation.
164. Szabo N, Liman S, Hines MR, Brouillette MJ, Johnson JE, Coleman MC, **Goetz JE**. N-acetylcysteine rescues Oxidative Damage Associated with High Mechanical Strain. *67th Annual Meeting of the Orthopaedic Research Society*, February 4-8, 2022. Tampa, FL. Poster 1473.
165. Aitken HD, Miller A, Rivas DJL, Westermann RW, Willey MC, **Goetz JE**. Computational optimization as a preoperative planning guide for periacetabular osteotomy improves contact mechanics in patients with hip dysplasia. *67th Annual Meeting of the Orthopaedic Research Society*, February 4-8, 2022, Tampa, Florida. Paper #0167, Paper Presentation Session 32: New Investigator Recognition Award – Muscle and Joint Mechanics. 2022 New Investigator Recognition Award finalist.
166. Aitken HD, Miller A, Rivas DJL, Westermann RW, Willey MC, **Goetz JE**. Radiographically successful periacetabular osteotomy fails to optimize contact mechanics in dysplastic hips. *67th Annual Meeting of the Orthopaedic Research Society*, February 4-8, 2022, Tampa, Florida. Poster #1659, Poster Presentation Session 2-124: Hip – Structure, Function and Mechanics.
167. Johnson JE, **Goetz JE**, Brouillette MJ, Miller BJ. Mechanical effects of virtual prophylactic stabilization in femurs with metastatic disease. *American Academy of Orthopaedic Surgeons 2021 Annual Meeting*. March 22-26, 2022. Chicago, IL. Musculoskeletal Oncology Poster Session 1: Poster P0189.
168. Pizzimenti MA, Zhang X, **Goetz JE**, Saha P. Paraffin fixed human trabecular bone specimens for study of osteoporosis. *Experimental Biology 2022*. Philadelphia PA, April 2-5. Podium Presentation: Morphological Sciences Award Hybrid Symposium.
169. Szabo N, Liman S, Hines MR, Brouillette MJ, Johnson JE, Coleman MC, **Goetz JE**. Specimen-specific modeling of mechanical strain-dependent oxidation in chondrocytes throughout injured articular cartilage. *2022 Osteoarthritis Research Society International (OARSI) Hybrid World Congress*, April 7-10, 2022, Berlin, Germany. Poster Presentation # V-244.
170. Johnson JE, Ana V. Figueroa, Brouillette MJ, Miller BJ, **Goetz JE**. Mechanical effects of virtual prophylactic IMN fixation in femurs with metastatic disease. 2022 *Annual Meeting of the International Society of Limb Salvage*. Sept 6-9, 2022. Los Angeles, CA. Podium Paper 28 – Platform Session 6: Robotics, 3D, PSI, Navigation.
171. Gassmann J, Dibbern KN, Aitken HD, **Goetz JE**, Davidson J, Glass N. Westermann RW, Willey MC. Weightbearing CT and stress imaging in the evaluation of surgically indicated hip dysplasia. *ISHA 2022 Annual Scientific Meeting*. Oct 13-15, 2022. Glasgow, UK. Podium Paper 336 – Focus On Technology Session.
172. Rivas DJL, Aitken HD, Dibbern KN, Willey MC, Westermann RW, **Goetz JE.** Incorporating patient-specific stance from weightbearing CT on computationally derived contact stresses in dysplastic hips. *ISHA 2022 Annual Scientific Meeting*. Oct 13-15, 2022. Glasgow, UK. Eposter Paper 120 – Focus on Technology Session.
173. Aitken HD, Miller A, Rivas DJL, Tatum M, Westermann RW, Willey MC, **Goetz JE**. Radiographically successful periacetabular osteotomy to treat hip dysplasia may not optimize contact stress. *ISHA 2022 Annual Scientific Meeting*. Oct 13-15, 2022. Glasgow, UK. JAM Free Paper 128 – Basic Science Session.
174. Aitken HD, Miller A, Rivas DJL, Westermann RW, Willey MC, **Goetz JE**. Preoperative computational optimization improves contact mechanics in patients with hip dysplasia treated with periacetabular osteotomy. *ISHA 2022 Annual Scientific Meeting*. Oct 13-15, 2022. Glasgow, UK. JAM Free Paper 129 – Basic Science Session.
175. Aitken HD, Willey MC, Westermann RW, Miller A, Glass N, **Goetz JE**. Elevated joint contact stress risk of joint failure when hip dysplasia is treated with periacetabular osteotomy. *ISHA 2022 Annual Scientific Meeting*. Oct 13-15, 2022. Glasgow, UK. Podium Paper 257 – Focus on Technology Session.
176. Miller A, Aitken HD, **Goetz JE**, Westermann RW, Willey MC. Radiographic measures of hip dysplasia correlate with joint contact stress computed with discrete element analysis. *ISHA 2022 Annual Scientific Meeting*. Oct 13-15, 2022. Glasgow, UK. JAM Free Paper 255 – Focus on Technology Session.
177. Tatum MM, **Goetz JE**, Aitken HD, Willey MC. A novel system for near real-time markerless intra-operative assessment of joint contact stress during periacetabular osteotomy: A proof-of-concept study. *ISHA 2022 Annual Scientific Meeting*. Oct 13-15, 2022. Glasgow, UK. JAM Free Paper 19 – Clinical Examination Session.
178. Hines MR, Gomez-Contreras PC, Rodman SN, Liman S, Van Remmen H, **Goetz JE**, Coleman MC. Preventing lipid peroxidation stimulates loss of glutathione reduction potential coincident with increased mitochondrial staining in articular chondrocytes. *29th Annual Conference of the Society for Redox Biology and Medicine.* Nov 16-19, 2022. Orlando, FL. Poster Presentation 007.
179. Liman S, **Goetz JE**, Coleman MC. Targeting hemoproteins with carbon monoxide prevents hyperoxia-induced cartilage injury. *29th Annual Conference of the Society for Redox Biology and Medicine.* Nov 16-19, 2022. Orlando, FL. Poster Presentation 227.
180. **Goetz JE.** Computational Models to Guide Clinical Correction of Young Adult Hip Dysplasia. University of Minnesota Musculoskeletal Research Seminar. Dec 14, 2022.
181. Szabo N, Brouillette M, Johnson J, **Goetz JE**. Iterative fitting of cartilage indentation tests yields different material property definitions based on use of 2D or 3D finite element meshes. *ORS 2023 Annual Meeting.* Feb 10-14, 2023. Dallas, TX. Poster #582: PS1-016: Cartilage & Synovium – Function, Structure & Mechanics.
182. Hines MR, Gomez-Contreras PC, Rodman SN, Liman S, **Goetz JE**, Coleman MC. Preventing lipid peroxidation stimulates loss of glutathione reduction potential coincident with increased mitochondrial staining. *ORS 2023 Annual Meeting.* Feb 10-14, 2023. Dallas, TX. Poster #1398: PS2-098: Cartilage & Synovium – Injury & Healing.
183. Liman S, Kluz P, Gomez-Contreras PC, Hines MR, Femino EL, Sakyi MY, Byrne JD, **Goetz JE**, Coleman MC. Targeting hemoproteins with carbon monoxide prevents hyperoxia-induced cartilage injury *ORS 2023 Annual Meeting.* Feb 10-14, 2023. Dallas, TX. Poster #1399: PS2-098: Cartilage & Synovium – Injury & Healing.
184. Scigliano NM, Garcia-Fleury I, Dibbern K; **Goetz JE**, Watson N, Glass NA, Talaski G, Buckwalter JA. The effect of full-body weight-bearing on ulnar variance: An upper extremity WBCT study. *ORS 2023 Annual Meeting.* Feb 10-14, 2023. Dallas, TX. Poster #1549: PS2-113: Hand & Wrist – Imaging.
185. Garcia-Fleury I, **Goetz JE**, Fredericks DC, Petersen E, Buckwalter JA. Nerve recovery after compression in a diabetic rat model. *ORS 2023 Annual Meeting.* Feb 10-14, 2023. Dallas, TX. Poster #1558: PS2-115: Hand & Wrist – Tendon, Ligament & Neuromuscular Disorders.
186. Rivas DJL, Aitken HD, Dibbern KN, **Goetz JE**, Westermann RW, Willey MC. 3D joint space width changes are associated with weight-bearing and rotational stance in hip dysplasia patients. *ORS 2023 Annual Meeting.* Feb 10-14, 2023. Dallas, TX. Poster #1574: PS2-119: Hip – Structure, Function & Mechanics.
187. Rivas DJL, Tatum MM, Aitken HD, **Goetz JE**, Willey MC; Weinstein SL. Identification of 3D anatomic structures that form 2D radiographic features used in hip dysplasia diagnosis. *ORS 2023 Annual Meeting.* Feb 10-14, 2023. Dallas, TX. Poster #1575: PS2-119: Hip – Structure, Function & Mechanics.
188. Tatum MM, **Goetz JE**, Aitken HD, Willey MC. A novel system for near real-time markerless intra-operative assessment of joint contact stress during periacetabular osteotomy: A proof-of-concept study. *ORS 2023 Annual Meeting.* Feb 10-14, 2023. Dallas, TX. Poster #1585: PS2-120: Hip – Surgical & Non-Surgical Interventions.
189. Aitken HD, Scott EJ, Yen YM, Kiapour AM, Sailer WM, Holt JB, **Goetz JE**. The effects of residual femoral deformity on contact mechanics in patients with slipped capital femoral epiphysis. *ORS 2023 Annual Meeting.* Feb 10-14, 2023. Dallas, TX. Paper #210: Session 38: Hip – Modeling & Image Analysis.
190. Szabo NE, Brouillette MJ, Johnson JE, **Goetz JE**. Variations in articular surface collagen fibril orientations produce similar shear stresses and strain calculations throughout the depth of cartilage. *2023 Osteoarthritis Research Society International (OARSI)*, March 17-20, 2023, Denver, Colorado. Poster Presentation #88.
191. Szabo NE, Liman S, Hines MR, Brouillette MJ, Johnson JE, Coleman MC, **Goetz JE**. Specimen-specific computational modeling of shear injury demonstrates a stress-based decline in oxidative damage and mitochondrial content after antioxidant treatment. *2023 Osteoarthritis Research Society International (OARSI)*, March 17-20, 2023, Denver, Colorado. Poster Presentation #359.
192. Garcia-Fleury I, **Goetz J**, Fredericks DC, Petersen E, Buckwalter JA. Nerve recovery after compression in a diabetic rat model. *40th Annual Meeting of the Mid-America Orthopaedic Association,* April 19-23, 2023, Miramar Beach, Florida. Paper #27, Breakout Session #1: Hand/Elbow.
193. Aitken H, Willey M, Westermann R, Miller A, Glass N, **Goetz J**. Elevated joint contact stress increases risk of joint failure when hip dysplasia is treated with periacetabular osteotomy. *40th Annual Meeting of the Mid-America Orthopaedic Association,* April 19-23, 2023, Miramar Beach, Florida. Paper #27, Breakout Session #2: Hip Preservation.
194. Kosonen JP, Eskelinen ASA, Orozco GA, **Goetz JE**, Coleman MC, Grodzinsky AJ, Tanska P, Korhonen RK. A mechanobiological model to simulate antioxidative treatment in impacted cartilage. *28th Congress of the European Society of Biomechanics*, July 9-12, 2023, Maastricht, Netherlands. (Accepted – Podium #696).
195. Gardegaront M, Johnson JE, Auvinet A, Bermond F, Confavreux C, Pialat JB, Levillain A, Miller BJ, **Goetz JE**, Mitton D, Follet H. Reproducibility of a finite element model of the human femur in torsional load. 48th Congress of the French Society of Biomechanics. Oct 25-27, 2023, Grenoble, France (Podium Presentation).
196. Aitken HD, Scott EJ, Yen YM, Kiapour AM, Sailer WM, Holt JB, **Goetz JE**. The effects of residual femoral deformity on contact mechanics after in-situ pinning of slipped capital femoral epiphysis (SCFE). *ISHA 2023 Annual Scientific Meeting.* Oct 5-7, 2023. Cape Town, South Africa. Paper #23, RF6.3: Session RF60 Rapid Fire Free Paper Session 6 – Open Hip.
197. Hines MR, Gomez-Contreras PC, Liman S, Saunders GK, Wilson AM, Fredericks DC, **Goetz JE**, Van Remmen H, Coleman MC. Lipid peroxidation is a critical feedback regulator of mitochondria in articular chondrocytes. *Society for Redox Biology and Medicine’s 30th Annual Conference*. Nov 15-18, 2023. Punta del Este Uruguay. (submitted).
198. Kosenen JP, Eskelinen ASA, Orozco GA, **Goetz JE**, Coleman MC, Grodzinsky AJ, Anderson DD, Tanska P, Korhonen RK. Positive effects of acute n-acetycysteine treatment simulated by an in silico model with overloading induced cell damage and recovery mechanisms. *ORS 2024 Annual Meeting.* Feb 2-6, 2024. Long Beach, CA. Poster #651: PS1-017: Cartilage & Synovium – Treatment & Therapeutics.
199. Williamson LA, Brouillette M, Miller T, **Goetz JE**, Wilken J, Anderson DD. Influence of custom dynamic orthoses on tibiotalar joint reaction forces: A cadaveric study. *ORS 2024 Annual Meeting.* Feb 2-6, 2024. Long Beach, CA. Poster #1758: PS2-116: Foot & Ankle – Structure, Function & Mechanics.
200. Liman S, Gomez-Contreras PC, Hines MR, Sakyi M, Byrne JD, Goetz JE, Coleman MC. Heme metabolism protects chondrocyte during injury. *ORS 2024 Annual Meeting.* Feb 2-6, 2024. Long Beach, CA. Poster #1645: PS2-107: Cartilage & Synovium – Treatment & Therapeutics.
201. Figueroa AV, Ogunsola A, Marinier M, Brouillette MJ, **Goetz JE**, Elkins JM. Press-fit tibial tray micromotion is similar during loading in high flexion between manual and robotic-assisted total knee arthroplasty. *ORS 2024 Annual Meeting.* Feb 2-6, 2024. Long Beach, CA. Poster #2601: PS2-LB177: Late Breaking Poster Session 2.
202. Scigliano NM, **Goetz JE**, Garcia-Fleury I, Dibbern KN, Watson N, Buckwalter JA. The effect of full-body weight bearing on palmar pressure distribution. *ORS 2024 Annual Meeting.* Feb 2-6, 2024. Long Beach, CA. Paper #109: Session 20: Hand & Wrist Biomechanics.
203. Williamson LA, Brouillette M, Miller T, **Goetz JE**, Wilken J, Anderson DD. Using custom dynamic orthoses to mitigate post-traumatic OA risk by reducing tibiotalar contact stress: A cadaveric study. *OARSI 2024 World Congress on Osteoarthritis.* April 18-21, 2024. Vienna, Austria. Abstract 4042171: Poster #138.
204. Aitken HD, Sailer WM, Rivas DJL, **Goetz JE**, Holt JB. Regional acetabular coverage and contact mechanics differences between normal and dysplastic hip joints. *19th International Symposium on Computer Methods in Biomechanics and Biomedical Engineering*. July 30-Aug 1, 2024. Vancouver, Canada. Abstract #256. Podium Presentation C.09 Implants, Orthotics, Prosthetics, Devices & Biologics.
205. Rivas DJL, Aitken HD. Willey MC, **Goetz JE**. Automated acetabular coverage calculation for virtual periacetabular osteotomy. *19th International Symposium on Computer Methods in Biomechanics and Biomedical Engineering*. July 30-Aug 1, 2024. Vancouver, Canada. Abstract #254. Podium Presentation C.10 Computer-Aided Surgery and Implants, Orthotics, Prosthetics, Devices & Biologics.
206. Szabo NE, Brouillette MJ, Johnson JE, **Goetz JE**. Including fluid mechanics causes large local strain variations in FE models of cartilage impact injury. *19th International Symposium on Computer Methods in Biomechanics and Biomedical Engineering*. July 30-Aug 1, 2024. Vancouver, Canada. Abstract #284. D.10: Bone and Cartilage Biomechanics II.
207. Figueroa AV, Rojas EO, Sailer WM, Chrea B. **Goetz JE**. The role of the lateral ankle joint ligaments on the stability of the syndesmosis. *2024 Annual Meeting of the American Society of Biomechanics*. Aug 5-Aug 8, 2024. Madison WI. Podium Presentation – Ortho 3.
208. Figueroa AV, Ogunsola A, Marinier M, Brouillette M, **Goetz JE**, Elkins JM. Press-fit tibial tray micromotion is similar during loading in high flexion between manual and robotic-assisted total knee arthroplasty. *2024 Annual Meeting of the American Society of Biomechanics*. Aug 5-Aug 8, 2024. Madison WI. Poster P2-50.
209. Figueroa AV, Ogunsola A, Marinier M, Brouillette M, **Goetz JE**, Elkins JM. Press-fit tibial tray micromotion is similar during loading in high flexion between manual and robotic-assisted total knee arthroplasty. *35th Annual Congress of the International Society for Technology in Arthroplasty (ISTA)*. Aug 28-Aug 31, 2024. Nashville TN. Poster Session 2 - #9202.
210. Maly C, Sakyi MY, **Goetz JE**, de Cesar Netto C, Chrea B. Influence of first ray positioning in the setting of a subtalar arthrodesis. *AOFAS 2024 Annual Meeting*. Sept 11-14, 2024. Vancouver, Canada. Poster.
211. Abdelaziz M, Hajewski T, **Goetz JE**, Femino J. The kinematic effect of anatomic deep deltoid ligament stabilization in a cadaveric model of syndesmotic instability with deep deltoid ligament instability. *AOFAS 2024 Annual Meeting*. Sept 11-14, 2024. Vancouver, Canada. Electronic Podium Presentation.
212. Rojas EO, Figueroa AV, Sailer WM, **Goetz JE**, de Cesar Netto C, Chrea B. The role of the lateral ankle joint ligaments on the stability of the syndesmosis. *AOFAS 2024 Annual Meeting*. Sept 11-14, 2024. Vancouver, Canada. Electronic Podium Presentation.
213. Rivas DJL, Aitken HD, Hayes T, Willey MC, **Goetz JE**. Automated acetabular coverage calculation for virtual periacetabular osteotomy. *ISHA 2024 Annual Scientific Meeting*. Oct 17-19, 2024. Washington DC. Video EPoster: OP4 – Oral EPoster Session 4, #3.
214. Aitken HD, Sailer WM, Rivas DJL, Willey MC, **Goetz JE**, Holt JB. Dysplastic hips demonstrate different relationships between regional acetabular coverage, joint congruity, and contact mechanics than normal hips. *ISHA 2024 Annual Scientific Meeting*. Oct 17-19, 2024. Washington DC. EPoster #276; EP5 – Technology – Innovations in AI, VR, AR, and Imaging.
215. Magdziarz SM, Figueroa AV, **Goetz JE**, Wilken JM. Repeatability of a novel in-vivo strain measurement approach in carbon fiber custom dynamic orthoses. *American Academy of Orthotists and Prosthetists (AAOP) 51st Academy Annual Meeting & Scientific Symposium*. Feb 26-Mar 1, 2025, Atlanta Georgia. Podium Presentation: Lower Limb Orthoses Track.
216. McCormick EM, Glass NA, Westermann RW, Drapeaux A, **Goetz JE**, Seffker C, Kochuyt A, Davison J, Willey MC. Early specialization in youth sports is associated with hip pain and surgical treatment in college-age athletes. *42nd MAOA Annual Meeting*, Apr 9-13, 2025, San Antonio, Texas. Paper #242.
217. Figueroa AV, Brouillette MJ, Tappa VC, Velasquez-Marin S, Elkins JM, **Goetz JE.** Differences in yield stress and stiffness of the iliofemoral ligament associated with normal and high BMI. American Society of Biomechanics 2025 Meeting, August 13-16, 2025, Pittsburgh, Pennsylvania. Abstract ID#17893
218. Sakyi MY, DenHartog TJ, Watson NA, **Goetz JE**, Elkins JM. Biomechanical strength of static spacers used in two-stage revision knee arthroplasty. American Society of Biomechanics 2025 Meeting, August 13-16, 2025, Pittsburgh, Pennsylvania. Abstract ID#.

**Grant Support / Research Funding / Contracts**

**Currently Funded Grants**

2025 ORS Collaborative Exchange Grant

Total Direct Costs: $3,050 to travel to Washington University in St. Louis

Orthopedic Research Society

Predicting Dysplastic Hip Survivorship after Periacetabular Osteotomy Based on Discrete Element Analysis-derived Contact Stress Patterns

Iowa Institute for Artificial Intelligence

Period of Funding: 07/01/2024 – 06/30/2025

Role: Principal Investigator

Predicting FastOA in Dysplastic Hips Using Articular Contact Mechanics

Arthritis Foundation

Total Direct Costs: $138,889

Total Project Costs: $150,000

Period of Funding: 09/01/2024 – 08/31/2025

Role: Co-Principal Investigator

**Pending Grants**

Persistence of Altered Contact Mechanics after PAO Placing Hips at High Risk For FastOA

Arthritis Foundation

Total Direct Costs: $231,115

Total Project Costs: $249,604

Period of Funding: 07/01/2025 – 06/30/2027

Role: Co-Principal Investigator

Novel Materials for the Prevention of PTOA

US DHHS, National Institutes of Health/R01 AR085602-01

Total Direct Costs: $2,499,995

Total Project Costs: $3,887,490

Period of Funding: 12/01/2025–11/30/2030

Principal Investigator: Mitchell Coleman, PhD & James Byrne, MD, PhD

Role: Co-Investigator (0.6 CY months)

**Completed Funded Grants**

CST6-mRNA Activated Matrices for Efficient Bone Regeneration

US DHHS, National Institutes of Health/NIDCR R21 DE031042-01

Total Project Costs: $424,875

Period of Funding: 03/01/2022–02/29/2024

Principal Investigator: Aliasger Salem, PhD

Role: Co-Investigator (0.6 CY months)

REU Site: Computational Bioengineering

National Science Foundation

Total Project Costs: $388,427

Period of Funding: 05/01/2021–04/30/2024

Principal Investigators: Edward Sander, PhD and Guadalupe Canahuate, PhD

Role: Faculty REU Mentor

Translating Metabolic Responses to Mechanical Insult into Early Interventions to Prevent PTOA

Department of Defense, Congressionally Directed Medical Research Program (CDMRP), Peer Reviewed Medical Research Program, Focused Program Award: W81XWH-18-1-0658

Total Project Costs: $9,999,762

Total Direct Costs: $7,195,918

Period of Funding: 09/01/2018–08/31/2023

Principal Investigator: Joseph A. Buckwalter, MD

Arthroscopic Correction of Femoroacetabular Impingement - A Joint Contact Stress Analysis

Smith & Nephew, Inc.

Total Project Costs: $50,999

Total Direct Costs: $33,442

Period of Funding: 02/26/2019–05/31/2023

Principal Investigator: Robert W. Westermann, MD

Role: Co-investigator

Joint Contact Stress as a Tool for Clinical Decision Making in Periacetabular Osteotomy Orthopaedic Research & Education Foundation

Total Direct Costs: $209,804

Total Project Costs: $209,804

Period of Funding: 07/01/2017–06/30/2022

Principal Investigators: Michael C. Willey, MD and Jessica E. Goetz, PhD

Characterizing PTOA Development in a New Rabbit Model of Closed Intra-Articular Fracture

University of Iowa Department of Orthopedics & Rehabilitation Internal Seed Grant

Total Project Costs: $29,872

Total Direct Costs: $29,872

Period of Funding: 03/01/2019–08/31/2020

Role: Principal Investigator

Nerve Compression & Recovery in a Diabetic Rat Model

University of Iowa Department of Orthopedics & Rehabilitation Internal Seed Grant

Total Project Costs: $29,947

Total Direct Costs: $29,947

Period of Funding: 03/01/2019–08/31/2020

Principal Investigator: Joseph Buckwalter V, MD, PhD

Joint Distraction Treatments of Intra-Articular Fracture-Induced Posttraumatic Osteoarthritis in a Large Animal Model

US Department of Defense, Congressionally Directed Medical Research Program (CDMRP), Peer Reviewed Orthopaedic Research Program (PRORP) Expansion Award: W81XWH-15-1-0642

Total Direct Costs: $1,058,085

Total Project Costs: $1,590,922

Period of Funding: 09/30/2015–09/29/2020

Principal Investigator: Jessica E. Goetz, PhD

Role: Principal Investigator

Engineering Endogenous Cartilage Repair

Arthritis Foundation

Total Direct Costs: $892,057

Total Project Costs: $961,381

Period of Funding: 01/01/2016–01/01/2019

Principal Investigator: James A. Martin, PhD

Role: Investigator

Innovations to Assess and Forestall Post-Traumatic Osteoarthritis

US DHHS, National Institutes of Health/NIAMS 4 P50 AR055533-10

Total Direct Costs: $0 (NCE)

Total Project Costs: $7,038,002

Period of Funding: 09/01/2012–08/31/2018

Principal Investigator: Joseph A. Buckwalter, MD

Role: Core PI

Mortise Medical Research Project

Mortise Medical, LLC

Total Project Costs: $100,620

Period of Funding: 01/01/2017–03/31/2018

Role: Principal Investigator

Non-Surgical Treatment of Arthrofibrosis

US Department of Defense, Congressionally Directed Medical Research Program (CDMRP) Peer Reviewed Orthopaedic Research Program (PRORP) Translational Research Award: W81XWH-14-1-0327

Total Project Costs: $1,098,613

Period of Funding: 09/01/2014–08/31/2017

Principal Investigator: James A. Martin, PhD

Role: Investigator

Modeling Flex RSA Study

Tornier, Inc.

Total Project Costs: $58,478

Period of Funding: 07/015/2015–07/015/2018

Principal Investigator: Carolyn M. Hettrich, MD

Role: Investigator

The Effects of Recombinant Human Parathyroid Hormone (rhPTH) Treatment Duration on Tendon-to-Bone Healing in a Rat Rotator Cuff Repair Model

Orthopaedic Research & Education Foundation

Total Project Costs: $19,983

Period of Funding: 07/01/2015–06/30/2016

Principal Investigator: Kyle R. Duchman, MD

Role: Collaborator

Identification of Histologically Based Biomarkers Contributing to a Mathematical Model of Pathological Fracture

University of Iowa OVPRED Internal Funding Initiative

Total Project Costs: $39,609

Period of Funding: 06/01/2014-09/30/2015

Role: Principal Investigator

Scapular Notching in Reverse Shoulder Arthroplasty with Medialized versus Lateralized Implants: A Clinical and Finite Element Study

Orthopaedic Research & Education Foundation (OREF)

Total Direct Costs: $50,000

Period of Funding: 07/01/2014–6/30/2015

Principal Investigator: Carolyn M. Hettrich, MD

Role: Investigator

Effects of Radiation Dosing Regimen on Mechanical Strength of Bone

University of Iowa Sarcoma Research Program

Total Project Costs: $10,500

Period of Funding: 05/01/2014-06/30/2015

Role: Principal Investigator

Dynamic Ultrasound Measurement of Median Nerve Kinematics in the Carpal Tunnel

US DHHS, National Institutes of Health/NIAMS 5 R03 AR062729-03

Total Project Costs: $226,500

Period of Funding: 04/01/13–03/31/18

Role: Principal Investigator

A Clinically Realistic Large Animal Model of Intra-Articular Fracture

US Department of Defense — Army Medical Research Acquisition Activity (AMRAA) W81XWH-10-1-0864

Total Project Costs: $1,344,406.74

Period of Funding: 09/15/2010–10/14/2014

Original PI: Yuki Tochigi, MD, PhD

Role: Principal Investigator (08/01/13)

The Effect of Syndesmotic Overcompression on Ankle Joint Mechanics in a Cadaver Model

Orthopaedic Research & Education Foundation (OREF)

Total Project Costs: $50,000

Period of Funding: 07/01/2012–12/30/2013

Principal Investigator: Phinit Phisitkul

Role: Investigator

CORT: New Approaches to Assess and Forestall Osteoarthritis in Injured Joints

Project 2: Acute versus Chronic Mechanical Damage in the Etiology of Post-Traumatic OA

US DHHS, National Institutes of Health/NIAMS 5 P50 AR055533-05

Total Project Costs: $7,879,267

Period of Funding: 09/10/2007–08/31/2012

Principal Investigator: Joseph A. Buckwalter, MD

Role: Investigator (Project 2)

Local Biomechanics of Median Nerve Insult in Carpal Tunnel Syndrome

US DHHS, National Institutes of Health/NIAMS 5 R01 AR053899-04

Total Project Costs: $1,016,565

Period of Funding: 09/07/2007–08/31/2012

Principal Investigator: Thomas D. Brown, PhD

Role: Co-Investigator

Multidisciplinary Biomechanical Characterization of Non-Pathologic Subsynovial Connective Tissue

University of Iowa OVPR Biological Sciences Funding Program

Total Project Costs: $29,145

Period of Funding: 04/15/2009–06/30/2010

Role: Principal Investigator

**Completed Funded Contracts**

SYK Biosciences Articular Injury Study

SYK Biosciences

Total Project Costs: $336,799.94

Period of Funding: 05/01/2022 – 04/30/2023

Principal Investigator: Douglas Fredericks

Role: Co-Investigator

**SERVICE**

**Professional Organizations**

Academic Network of Conservational Hip Outcomes Research (ANCHOR), Member since 2025

Osteoarthritis Clinical Trials Network, Member since 2025

American Society of Biomechanics (ASB), Member since 2008

2017 Session Moderator, Hip Structure & Function, 41st Annual Meeting

2017 Session Moderator, Tissue Mechanics, 2017 Midwest Regional Meeting

2020 Session Moderator, Orthopedics 2, Virtual 44th Annual Meeting

2021 Program Committee, Virtual 45th Annual Meeting

2023 Awards Committee Reviewer: 2023 ASB Goel Award for Translational Biomechanics Research

Orthopedic Research Society (ORS), Member since 2008

2016 Session Moderator, Foot & Ankle Session

2021 Harris Award Reviewer for 2022 Meeting

2024-26 Hip Topic Chair

Osteoarthritis Research Society International (OARSI), Member since 2019

**Journal Reviewer**

2009 - Present Journal of Applied Biomechanics

2009 - Present Journal of Orthopaedic Research

2010 - Present Clinical Biomechanics

2010 - Present Journal of Bone and Joint Surgery

2012 - Present Journal of Biomechanics

2013 - Present Foot & Ankle International

2015 - Present Osteoarthritis & Cartilage

##### Journal Editorial Review Board

2016 - Present Journal of Orthopaedic Research

2022 – Present Foot & Ankle International (Content Editor)

**Abstract Reviewer**

2010 - Present Orthopaedic Research Society

2016 - Present American Society of Biomechanics

2022 North American Congress on Biomechanics

**Grant Reviewer**

2015 Wellcome Trust India Alliance

2017 DoD CDMRP - Peer Reviewed Orthopaedic Research Program, Preapplication - Post-Traumatic Osteoarthritis

2018 University of Utah, LS Peery Discovery Program in Musculoskeletal Restoration

2018 DoD CDMRP - Peer Reviewed Medical Research Program, Preapplication - Arthritis - 1 (PRE-ART-1)

2018 Great Plains IDeA-CTR Pilot Grant Program

2019 BioNexus KC Review – Nexus 2019

2019, 2020 Orthopaedic Research and Education Foundation, Career Development Grant Panel

2021 National Science Foundation, Biomechanics and Mechanobiology Panel

2021 Stryker/ORS Women’s Research Fellowship

2021 National Science Foundation (NSF) Biomechanics & Mechanobiology Panel

2022 Orthopedic Research and Education Foundation, Resident Research Grants

2023 DoD CDMRP – Peer Reviewed Medical Research Program Clinical Trial – Musculoskeletal Health-1 (CT-MSH-1)

2024 NIH Musculoskeletal Rehabilitation Sciences (MRS) Study Section Reviewer 02/08/24-02/09/24 panel

2024 NIH Arthritis and Musculoskeletal and Skin Diseases Special Grants (AMS) Study Section Reviewer 06/20/24-06/21/24 panel

2024 NIH Musculoskeletal Rehabilitation Sciences (MRS) Study Section Reviewer 10/16/24-10/17/24 panel

2025 NIH Arthritis and Musculoskeletal and Skin Diseases Special Grants (AMS) Study Section Reviewer 03/6/25-03/7/25 panel (held 4/14/2025-4/15/2025)

##### External Thesis Examiner

2014 National University of Singapore, Liong Yushan PhD Review Committee: *Median nerve compression and its relation to idiopathic carpal tunnel syndrome*

2022 University of Eastern Finland, Atte Eskelinen PhD Preliminary Examiner: *Mechanics and Inflammation – Regulators of Articular Cartilage Degradation: Models aiming towards comprehensive prediction of post-traumatic osteoarthritis progression*

**Departmental Service**

2014 – 2021 Chair Departmental Resident Research Committee

2013 – present Departmental Resident Research Committee

2018 – present Departmental Diversity Committee

2022 – present Departmental Promotions Committee (Buckwalter V, Holt, Willey)

**Institutional Service**

2019-2020 Medical Student Summer Research Fellowship Proposal Reviewer

2023, 2024 Medical Student Summer Research Conference Poster Judge

2023-current Information Technology Advisory Charter Committee (ITAC)

2024-current Faculty Senate

**National Service**

2021 Moderator for “Care for Return to Duty within 1 Year of Injury for Military Service Members” Session of the Department of Defense (DOD) Congressionally Directed Medical Research Programs’ Peer Reviewed Orthopaedic Research Program (PRORP) Stakeholders Meeting – September 27, 2021 – virtual meeting

**Educational Outreach**

2011 Anderson DD, Goetz JE. Night at the Lab: CAOS – Computer-Assisted Orthopaedic Surgery. *The University of Iowa Lifetime Enrichment Adult Program,* July 20, 2011

2019 Orthopedic Biomechanics Research. *Kirkwood Workplace Learning Connection.* April 16, 2019.

2019 Orthopedic Biomechanics Research. *Kirkwood Workplace Learning Connection.* Oct 19, 2019.

2019 Orthopedic Biomechanics Research. *Kirkwood Workplace Learning Connection.* Nov 12, 2019.

2021 Orthopedic Research: Biomedical Engineering in a Clinical Discipline. *Kirkwood Workplace Learning Connection Career Caravan.* Dec 15, 2021.

2022 Computational Models to Guide Clinical Correction of Young Adult Hip Dysplasia. *Iowa City Area Chamber of Commerce Community Leadership Program Health Care Day.* March 11, 2022.

2022 National Biomechanics Day Lab Tour. *University of Iowa Healthcare Division of Community Relations* & *Kirkwood Workplace Learning Connection.* April 15, 2022.

2022 Cornell College Human Biomechanics Course Lecture. September 7, 2022.

2022 Orthopedic Biomechanics Research. *Iowa City Area Chamber of Commerce Community Leadership Program Health Care Day.* November 11, 2022.

2022 Biomedical Engineering Career: Biomedical Engineering in a Clinical Discipline. *Kirkwood Workplace Learning Connection Career Caravan.* Dec 21, 2022.

2023 Cornell College Intro to Biomechanics Course Lecture. September 6, 2023.

2023 Biomedical Engineering Career: Biomedical Engineering in a Clinical Discipline. *Kirkwood Workplace Learning Connection Career Caravan.* Dec 20, 2023.

2024 STEM visit Apr 4, 2024

2024 Perry Initiative, Engineering Spotlight Speaker, Sept 28, 2024