
KHARMA C. FOUCHER, MD, PhD

University of Illinois at Chicago
Department of Kinesiology and Nutrition
1919 West Taylor Street, 650 AHSB
Chicago, Illinois 60612
Email: kfouch1@uic.edu

EDUCATION

- 2008 **MD** University of Illinois at Chicago
- 2006 **PhD** Department of Bioengineering, University of Illinois at Chicago
Dissertation: "Hip Joint Loading in Subjects with Total Hip Replacements"
Advisor: Debra E. Hurwitz, PhD, Rush University Medical Center Motion Analysis
Laboratory
- 1996 **SB** Engineering Sciences (Biomedical), Harvard University
Independent Honors Thesis: "A Breast Self-Examination Training System"
Advisor: Robert Howe, PhD, Harvard Biorobotics Laboratory

EXPERIENCE

FACULTY APPOINTMENTS

- 2020-Present **Associate Professor**, Department of Kinesiology and Nutrition
Director, Biomechanics and Clinical Outcomes Laboratory
University of Illinois at Chicago
- 2020-Present **Adjunct Associate Professor**, Department of Bioengineering
University of Illinois at Chicago
- 2013-2020 **Assistant Professor**, Department of Kinesiology and Nutrition
Director, Biomechanics and Clinical Outcomes Laboratory
University of Illinois at Chicago
- 2011-2020 **Adjunct Assistant Professor**, Department of Bioengineering
University of Illinois at Chicago
- 2009-2013 **Assistant Professor**, Department of Orthopedic Surgery
Rush University Medical Center, Chicago, Illinois
- 2005-2009 **Instructor**, Department of Orthopedic Surgery
Rush University Medical Center, Chicago, Illinois

OTHER POSITIONS

- 2020-Present **Associate Director for Education and Professional Development**, Center for Clinical
and Translational Science, University of Illinois at Chicago

- 2010-2013 **Co-director**, Joan and Paul Rubschlager Motion Analysis Laboratory, Department of Orthopedic Surgery, Rush University Medical Center
- 2005-2009 **Laboratory Manager**, Motion Analysis Laboratory, Department of Orthopedic Surgery, Rush University Medical Center

TEACHING and MENTORING

Courses Taught:

- University of Illinois at Chicago, Department of Kinesiology and Nutrition
- Spring 2021 KN 394/494/594: Mechanics of Human Locomotion
- Spring 2020 *Upper level undergraduate/graduate course in gait mechanics*
- Spring 2019
- Fall 2017
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- Fall 2020 KN 362 Tissue Mechanics
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- Fall 2020 KN465 Biomechanics of the Neuromusculoskeletal Systems
- Spring 2020 *Upper level course in tissue mechanics; Required for Movement Science concentration*
- Fall 2019
- Spring 2019
- Fall 2018
- Spring 2018
- Spring 2017
- Fall 2016
- Spring 2016
- Fall 2015
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- Fall 2016 KN 501 Current Research in Kinesiology
- Fall 2016 KN 596 Independent Research in Kinesiology
- Summer 2016
- Spring 2016
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- Spring 2015 University of Illinois at Chicago, Department of Kinesiology and Nutrition
- KN594 Selected Topics in Kinesiology: Mechanics of Human Locomotion
- Developed and taught graduate-level course in gait mechanics.*
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- Spring 2014 KN 396 Independent Study in Kinesiology
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- Guest Lectures:
- Spring 2017 KN 594 Grant Writing for PhD Students
- KN 100 First-Year Seminar
- Fall 2016 HN 594 Cells to Community
- Fall 2015 HN 594 Cells to Community
- Fall 2015 KN/PT574 Instrumentation for Motor Control Research

Rush University
Spring 2013 Program in Biomechanics
 BMC 513 Kinematics of Human Motion
Developed and taught graduate-level course in lower extremity gait kinematics. Required course for MS in Biomechanics

AY 2011-2012 Rush Medical College
AY 2012-2013 RMD781 – M1 research elective
Mentored individual student research projects and led a section of journal club.

Other Mentoring:

2010-2013 Founder, Facilitator, Writing Accountability Groups
 Rush University Research Mentoring Program
Established weekly peer-mentoring writing groups for junior faculty. Served as peer-facilitator for 6 10-weeks sessions over 3 years.

2009-2011 Member Mentoring Committee NIH NIAMS F32 AR057297 PI Hannah J. Lundberg, PhD,
 Title: Calculation of Total Joint Replacement Contact Forces During Level Walking.

Postdoctoral Fellow Mentoring:

2014-2017 Jessica A. Longworth, PhD, University of Illinois at Chicago
 Department of Kinesiology and Nutrition

Graduate student advising:

2020-Present Janis Kim, PT, PhD Candidate, University of Illinois at Chicago
 Department of Kinesiology and Nutrition

2019-Present Bradley Allison, DPT, PhD Student, University of Illinois at Chicago
 Department of Kinesiology and Nutrition

2018-Present Vered Arbel, MS, PhD Student, University of Illinois at Chicago
 Department of Kinesiology and Nutrition

2016-Present Burcu Aydemir, MS. PhD Candidate, University of Illinois at Chicago
 Department of Kinesiology and Nutrition

2016-Present Chun-Hao Huang, MS. PhD Candidate, University of Illinois at Chicago
 Department of Kinesiology and Nutrition

2015-2017 Christopher C. Cinnamon, JD, MS. University of Illinois at Chicago
 Department of Kinesiology and Nutrition

2012-2017 Samir Chabra, MS. University of Illinois at Chicago
 Department of Bioengineering

2009-2011 Bryan R. Schlink, MS. University of Illinois at Chicago
 Department of Bioengineering

Thesis: Gait Biomechanics and Disease Severity in Hip Osteoarthritis

Other Graduate Student Exam Committees:

- 2020 Alexandra Nilius, MS
University of Illinois at Chicago, Department of Kinesiology and Nutrition
“Guidelines for quantifying strength in people with lower limb amputation”
- 2019 Aaron Westbrook, MS
University of Illinois at Chicago, Department of Kinesiology and Nutrition
“Step width does not scale to body size of young adults during treadmill gait”
- 2019 David Desmet, MS
University of Illinois at Chicago, Department of Kinesiology and Nutrition
“Treadmill-belt width, but not feedback from the lower visual field, influences noise characteristics of step width time series during treadmill walking”
- 2018-2019 Janis Kim, PT, PhD Candidate
University of Illinois at Chicago, Department of Kinesiology and Nutrition
- 2017 Kevin Palumbo, MS
University of Illinois at Chicago, Department of Kinesiology and Nutrition
“Walking for 10 minutes with a decreased step width decreases subsequent step width and margin of stability”
- 2015-2018 Steven Mell, PhD
University of Illinois at Chicago, Department of Bioengineering
“Computational, Subject Specific Damage Modeling of the Polyethylene Component of Total Knee Replacements”
- 2015-2016 Kristin Hoddy, PhD
University of Illinois at Chicago, Department of Kinesiology and Nutrition
“Meal timing during alternate day fasting: Effect on heart disease risk and hunger in obese humans”
- 2014-2018 Christopher Knowlton, PhD
University of Illinois at Chicago, Department of Bioengineering
“A Model of Wear from Retrieved Polyethylene Components of Total Knee Replacements”
- 5/2014 Andrew Arnold, MS
University of Illinois at Chicago, Department of Kinesiology and Nutrition
“Influence of walking speed and slope on the relationship between trunk kinematics and step width”
- 2/2014 Christopher Ferrigno, MPT, PhD
Rush University, Department of Anatomy and Cell Biology
“Evaluating the Association between Changes in Foot Kinematics, Center of Foot Pressure, and Knee Joint Loading”
- 3/2014 Mackenzie Pater, PhD
University of Illinois at Chicago, Department of Kinesiology and Nutrition;
“Associating Knee Osteoarthritis with Fall Risk: Implications for Interventions”

Medical Student Research Mentoring:

Summer 2012	Omar Behery, Rush Medical College (Deans Fellowship Recipient)
2011-2012	Genna Waldman, Rush Medical College
Summer 2011	Andreea Mihai, Rush Medical College (Dean's Fellowship Recipient)
	Melanie Marsh, Rush Medical College (co-mentor with Laura Thorp, PT, PhD)
Summer 2009	Matthew R. Walker, University of Illinois at Chicago, College of Medicine
Summer 2008	George Kannakeril, Rush Medical College

Undergraduate Student Research Mentoring:

2020-2021	Lauren Yee, University of Illinois at Chicago, Kinesiology
2020-2021	Anwar Masud, University of Illinois at Chicago, Kinesiology
2019-2020	Chloe Baratta, University of Illinois at Chicago, Bioengineering
2019-2020	Anusha Jalastrutram, University of Illinois at Chicago, Integrative Health Sciences Advisor, Honors College Capstone Project
2019-2020	Ike Kabir, University of Illinois at Chicago, Bioengineering
2019-2020	Khush Brar, University of Illinois at Chicago, Kinesiology
2017-2019	Megan Horras, University of Illinois at Chicago, Kinesiology
2014-2017	Vivian Chau, University of Illinois at Chicago, Kinesiology
2014-2017	Kristin Tayag, University of Illinois at Chicago, Kinesiology
2014-2016	Colleen Ryan, University of Illinois at Chicago, Kinesiology
2014-2015	Sebastian Chlosta, University of Illinois at Chicago, Bioengineering
2014-2016	Kris Dapitan, University of Illinois at Chicago, Kinesiology Advisor, Honors College Capstone Project

OTHER PROFESSIONAL ACTIVITIES and SERVICE

Institutional Service

University of Illinois at Chicago:

2021	Bridge to the Faculty Postdoctoral Research Associate Search Committee, Department of Occupational Therapy
2020-2021	Curriculum Committee, Department of Kinesiology and Nutrition
2019-2021	Faculty Advisory Committee, Department of Kinesiology and Nutrition
2018-2019	Task force on the BS in Kinesiology, Department of Kinesiology and Nutrition
11/19/2018	Interview for student from Applied Health Sciences 294
Summer 2018	Clinical Assistant Professor Search Committee, Department of Kinesiology and Nutrition
Summer 2018	Clinical Instructor Search Committee, Department of Kinesiology and Nutrition
Spring 2018	Clinical Instructor Search Committee, Department of Kinesiology and Nutrition
2017-present	Department of Kinesiology and Nutrition, Doctoral Student Evaluation Committee

Annually 7/2015-7/2019	Applied Health Sciences: Summer Exploration and Transition Program, Faculty Round Table for incoming freshman pre-health students
Spring 2015	Chair, Clinical Instructor Search Committee, Department of Kinesiology and Nutrition, Instructor
2014-2015	Chair, Department of Kinesiology and Nutrition, Doctoral Student Evaluation Committee
Spring 2015	Department of Kinesiology and Nutrition, Faculty Search Committee, Assistant/Associate Professor, Biomechanics/Mobility
3/6/19	Lab Tour & Interview for students from Biological Sciences 100
10/26/17	
3/2/16	
3/19/15	
7/15/14	Applied Health Sciences: Summer Exploration and Transition Program, Lab Tour for incoming freshman pre-health students
7/1/14-6/20/16	College of Applied Health Sciences Representative, University of Illinois at Chicago Senate
2013- 2014	Department of Kinesiology and Nutrition, Doctoral Student Evaluation Committee
Spring 2014	Department of Kinesiology and Nutrition, Faculty Search Committee, Clinical Assistant/Associate Professor, Anatomy and Physiology
Rush University Medical Center:	
2012-2013	Provost Committee on Gender Issues
2012-2013	Committee on Admissions, Holistic Screening Subcommittee
2012-2013	Committee on Admissions, Interviewer Subcommittee
2012	Rush Research Mentoring Program Annual Retreat Planning Committee
2012	Faculty Search Committee, External Member, University of Illinois at Chicago, Department of Kinesiology and Nutrition
2011-2012	Interviewer, Rush Medical College, Office of Admissions
12/2011	Rush University, College of Health Sciences Research Retreat. Hosted roundtable on writing productivity
2011	Rush Research Mentoring Program Annual Retreat Planning Committee
2011	T32 Short-term Trainee Selection Committee, Rush Medical College, Department of Anatomy and Cell Biology

Memberships

2020-Present	American Society of Biomechanics
	2020- Mentor, ASB Student Mentoring Program
2008-Present	Orthopaedic Research Society
	2020-2021 Mentor, Mentor Match Program
	2020-2023 Chair, Diversity, Equity, and Inclusion Committee
	2020-2025 Community Council, Chair 2022-2025
	2020 Panelist, Understanding and Addressing our Own Implicit Biases
	2020 Mentor, Meet the Mentor Program
	2020 Moderator, Epidemiology Session
	2019 Poster Judge, ORS Great Lakes/Midwest Regional Symposium

2019 Member, Diversity and Inclusion Task Force
 2018-2020 Awards and Recognition Committee
 2018 Moderator, Arthroplasty Clinical Outcomes Session
 2014 Poster Tour Leader, Hip Mechanics and FAI
 2014-present Abstract Reviewer

Grant review

11/2021 NIH Grant Review; National Institute of Arthritis and Musculoskeletal and Skin Diseases, Special Emphasis Panel

3/2021 NIH Grant Review; National Institute of Arthritis and Musculoskeletal and Skin Diseases, Special Emphasis Panel

7/2020 Center for Clinical and Translational Sciences Pilot Grant Program review

5/2020 Center for Clinical and Translational Sciences COVID-19 grant review

4/2020 Center for Clinical and Translational Sciences KL2 Reviewer

10/2019 NIH Grant Review
 MOSS Special Emphasis Panel – Pediatric Rehabilitation
Alternate Chair

9/2019 Center for Clinical and Translational Sciences Pilot Grant Review Panel

7/2019 NIH Grant Review
 National Institute of Biomedical Imaging and Bioengineering
 Special Emphasis Panel

7/2017-6/2023 NIH Grant Review
 Standing Member Musculoskeletal Rehabilitation Sciences Study Section [MRS]

6/2017 NIH Grant Review
ad hoc Member Musculoskeletal Rehabilitation Sciences Study Section [MRS]

3/2017 NIH Grant Review; National Institute of Arthritis and Musculoskeletal and Skin Diseases, Special Emphasis Panel

3/2017 University of Illinois at Chicago Limited Competition Internal Peer Review Aetna Foundation

1/2017 University of Illinois at Chicago Limited Competition Internal Peer Review HRSA Primary Care Medicine and Dentistry Clinician Educator Award

12/2016 Orthopaedic Research and Education Foundation
 Goldberg Arthritis Research Grant Peer Review Committee

10/2016 NIH Grant Review
ad hoc Member Musculoskeletal Rehabilitation Sciences Study Section [MRS]

2/2015 NIH Grant Review
ad hoc Member Skeletal Biology Structure & Regeneration Study Section [SBSR]

Editorial boards

2019-2021 Member, Editorial Review Board, *Journal of Orthopaedic Research*

Ad Hoc Peer-review

Arthritis & Rheumatology	Gait & Posture
Archives of Physical Medicine and Rehabilitation	Journal of Biomechanics
Computers in Biology and Medicine	Journal of Orthopaedic Research
Clinical Biomechanics	Medicine and Science in Sports & Exercise
Clinical Orthopaedics and Related Research	Osteoarthritis and Cartilage
Experimental Gerontology	Physical Therapy

Outreach

4/11/2018 National Biomechanics Day
Hosted a class of 25 students in grades 4-6 from Suder Montessori School, a Chicago Public School.

RESEARCH

HONORS, AWARDS, AND OTHER RECOGNITION

- 2021 Orthopaedic Research Society Adele L. Boskey, PhD Award
This award recognizes a mid-career member of the ORS for outstanding and sustained commitment to mentorship as well as a demonstrated track-record of an upward trajectory and impactful research program.
- 2019 June Editor's Choice from Journal of Orthopaedic Research for article "Duration of Symptoms is Associated with Conditioned Pain Modulation and Somatosensory Measures in Male and Female Patients with Knee Osteoarthritis"
- 2017 "Excellence in Clinical Science" Award from Journal of Orthopaedic Research, for article "Identifying clinically meaningful benchmarks for gait improvement after total hip arthroplasty"
- 2015 Article "Does hip implant positioning affect the peak external adduction moments of the healthy knees of subjects with total hip replacements?" featured in Special [Virtual Issue](#) of the Journal of Orthopaedic Research: *Total Joint Arthroplasty*. Compiling "the best recently published manuscripts in the fields of biomechanics, biomaterials, biology and clinical science relevant to joint replacement."
http://onlinelibrary.wiley.com/journal/10.1002/%28ISSN%291554-527X/homepage/jor_virtual_issues.htm

- 2014 Best in Class Poster Award. Association of American Medical Colleges, Group on Faculty Affairs Annual Meeting
“Supporting faculty scholarship: factors associated with writing productivity”
Authors: **Foucher KC**, Skarupski KA
- 2011 Mentee of the Year, Rush Research Mentoring Program
For contributions to the mentoring program and research accomplishments in AY 2010
- 2011 Award Recipient, Rush Research Forum, Rush Research Mentoring Program Abstract competition.
“Gait adaptations and reconstructed joint geometry are associated with abnormal contralateral hip and knee loading after total hip replacement”
- 2011 Finalist, New Investigator Recognition Award, Orthopaedic Research Society
Among 40 finalists selected from all submissions from researchers within 5 years of terminal degree
“Gait adaptations and reconstructed joint geometry are associated with abnormal contralateral hip and knee loading after total hip replacement”
- 2010 Finalist, Rush Research Mentoring Program Abstract competition, Rush Research Forum
“Full Activity Recovery but Incomplete Biomechanical Recovery after Minimally Invasive Total Hip Arthroplasty”
- 1999 Musculoskeletal Research Center of the University of Pittsburgh Medical Center Award, Annual Meeting of the American Society of Biomechanics
“Gait adaptations in postoperative total hip replacement patients are associated with reduced hip contact force”
- 1999 Best Oral Presentation, University of Illinois at Chicago MD/PhD Student Research Symposium
“Factors influencing variation in gait adaptations after total hip replacement”

Awards Received by Trainees

- 2017 Chun-Hao Huang, 1st Place, University of Illinois at Chicago Student Research Forum
“Step Length Asymmetry and its Associations with Mechanical Energy Exchange, Function, and Fatigue after Total Hip Replacement”
- 2016 J. Heather Brunner, Rheumatology Research Foundation Student Achievement Award

“Sex-Specific Associations Between Improvement in Gait Mechanics and Improvement in Pain, Function, and Abductor Strength after Total Hip Arthroplasty”

- 2012 Samir Chabra, American College of Rheumatology Research and Education Foundation/Abbott Medical/Graduate Student Achievement Award
“Gait Differences Are Present in Subjects with Symptomatic Vs. Asymptomatic Mild Radiographic Hip Osteoarthritis”
- 2011 Bryan Schlink, 3rd place, University of Illinois at Chicago Student Research Forum
“Hip motion patterns are associated with disease severity and reduced dynamic loading in hip osteoarthritis”
Co-Authors: Shakoor N, Wimmer MA, Foucher KC

Other Co-Authored Awards

- 2013 Best in Class Poster Award. Association of American Medical Colleges, Group on Faculty Affairs Annual Meeting
“Strategies for Enhancing Writing Accountability Groups within a Junior Faculty Research Mentoring Program”
Co-Authors: Lundberg HJ, **Foucher KC**, Skarupski KA.

MEDIA

- 2021 [Biomechanics On Our Minds Podcast](#), April 2021
- 2017 [Helio Rheumatology Article re Sex-specific THR outcomes](#)
- 2016 [Pain Week article re Sex-specific THR outcomes](#)
- 2016 American College of Rheumatology/Association of Rheumatology Health Professionals Press Conference. *One of 24 invited participants selected by the society to discuss research with the press.*
- 2012 Interviewed for [WGN News](#) Health Segment, December 19, 2012
- 2012 Featured on WBEZ science segment [“Clever Apes”](#), May 12, 2012

INVITED PRESENTATIONS

Research Presentations

- 8/7-8/12/2022 Invited Speaker, Gordon Research Conference, Musculoskeletal Biology and Bioengineering
- 12/9/2021 Harvard University, Topics in Bioengineering Seminar Series, *Virtual*
- 11/10/2021 University of Illinois at Chicago, Kinesiology and Nutrition Seminar Series
- 4/16/2021 2021 Joint Crosstalk Symposium, *Virtual*
- 3/29/2021 La Jolla Arthritis Conference, *Virtual*
- 10/22/2020 Louisiana State University, Seminar Series, *Virtual*
- 8/9-8/14/2020 Invited Speaker, Gordon Research Conference, Musculoskeletal Biology and Bioengineering*
*Cancelled due to COVID-19
- 2/12/2020 Harvard University, Cambridge MA
- 11/6/2019 University of Illinois at Chicago, Applied Health Sciences Research Day Lightning Talk

11/29/2018	University of Melbourne, Victoria, Australia, <i>Virtual</i>
11/8/2018	University of Florida, Gainesville, FL
11/2/2018	University of Nebraska Omaha
8/21/2017	Shirley Ryan Ability Lab, Chicago IL
6/16/2016	US Bone and Joint Initiative Board of Directors Meeting. Chicago, IL.
6/13/2016	Chicago Tai Chi – Interview and conversation on the role of exercise in OA development and progression.
5/9/2012	Invited Faculty, American Association of Orthopaedic Surgeons/Orthopaedic Research Society Femoroacetabular Impingement Research Symposium, Chicago, Illinois.

Faculty Development Presentations

7/19/2021	University of Illinois at Chicago, Center for Clinical and Translational Studies Short Course in Clinical and Translational Research – What it means to be a PI
5/27/2021	University of Illinois at Chicago, College of Medicine – Rockford Campus
4/29/2021	University of Illinois at Chicago, College of Nursing Writing Retreat
1/24/2020	University of Illinois at Chicago, Center for Clinical and Translational Studies Professional Development Workshop – Writing Accountability Groups
10/2/2019	University of Illinois at Chicago, Center for Clinical and Translational Studies Professional Development Workshop – Writing Accountability Groups
9/24/2013	Johns Hopkins School of Medicine Office of Faculty Development Seminar, Baltimore, Maryland. – Writing Accountability Groups

Other panels or conferences

7/10-7/14/2022	co-Chair session Locomotion & Biomechanics - Osteoarthritis and Orthopaedic Conditions, World Congress of Biomechanics, Taipei, Taiwan
9/20-9/21/2021	Moderator, Causes & Consequences of Age-Related Changes in Gait Biomechanics workshop, National Institutes on Aging, Division of Geriatrics and Clinical Gerontology
11/6/2020	Invited Panelist, Philadelphia Spine Research Society (PSRS) Symposium, COVID-19 Challenges and Equity/Diversity in Spine Research
2/11/2020	Invited Panelist, School of Engineering and Applied Sciences Sophomore Convocation, Harvard University
05/2010	Panelist, “Going Weak in the Knees – when Arthritis Strikes” Rush University Medical Center, Department of Orthopedic Surgery Educational Event-Rush Rounds

RESEARCH FUNDING

Current

6/1/21-6/30/22	Co-Investigator (Principal Investigator Lindsay Slater) UIC Applied Health Sciences Interdisciplinary Pilot Grant Title: A novel approach to treat knee osteoarthritis in patients with and without history of lower limb amputation \$29,760 direct costs
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- 11/16/18 – 6/30/21 Principal Investigator
University of Illinois at Chicago Center for Clinical and Translational Sciences Pilot Grant
Title: Impact of obesity, fatigue, and strength on physical activity in people with knee OA
\$60,000 direct costs
- Completed**
- 5/1/16 – 4/30/20 Principal Investigator
NIH/NIA R21 AG052111
Title: Impact of osteoarthritis-related gait impairment on energy, fatigue, and physical activity
\$275,000 direct costs
- 6/1/18 – 8/31/19 Principal Investigator
UIC Applied Health Sciences Interdisciplinary Pilot Grant
Title: Predicting mechanical and clinical outcomes of total hip arthroplasty
\$19,329
- 3/1/15 – 6/30/16 Principal Investigator
University of Illinois at Chicago Campus Research Board
Title: Understanding and improving gait mechanics and functional outcomes after total hip replacement
\$19,898
- 7/1/12 – 6/30/13 Principal Investigator
Private Donation
Title: Establishing a model of early stage hip OA – femoroacetabular impingement
\$140,000
- 12/1/12 – 6/30/13 Principal Investigator
Rush Research Mentoring Program Young Investigator Fund Grant
Title: Neuromechanical predictors of clinical and functional outcomes after total hip replacement
\$22,250
- 7/1/11 – 6/30/13 Principal Investigator
Rush Translational Science Consortium/Searle Foundation
Pilot Projects Grant
Title: Development and validation of a novel biomechanical marker of hip osteoarthritis
\$100,000
- 8/1/11 – 4/30/15 Co-Investigator (PI Markus Wimmer)
NIH/NIAMS R01AR059843
Title: Wear Testing for Enhanced Prediction of TKR Clinical Performance
\$900,000 direct costs
- 7/1/10 – 6/30/16 Recipient, NIH Loan Repayment Program (NIAMS)
Extramural Loan Repayment Program for Clinical Research (LRP-CR)

\$141,297

7/1/10 – 7/1/12 Co-Investigator (PI Najia Shakoor, MD)
Arthritis Foundation Innovative Research Grant
Title: The Effects of Specialized Footwear in Osteoarthritis of the Knee
\$200,000

7/1/06 – 6/30/10 Co-Investigator (PI Markus Wimmer)
NIH/NIAMS R03AR052039
Title: "Daily Activity of TKR Patients as Input for Wear Testing"
\$150,000 (Direct Costs)

PUBLICATIONS

Articles in peer-reviewed journals:

1. Aydemir B, Huang CH, **Foucher KC**. Strength and physical activity in osteoarthritis: the mediating role of kinesiophobia. *Journal of Orthopaedic Research*, Accepted July 13, 2021.
2. **Foucher KC**, Aydemir B, Huang CH. Walking energetics and fatigue are associated with physical activity in people with knee osteoarthritis. *Clinical Biomechanics*, 88: 105427, 2021.
3. **Foucher KC**, Huang CH, Aydemir B. Walking energetics and abductor strength are associated with physical activity in women with hip osteoarthritis. *Gait and Posture*, 85:151-156, 2021.
4. **Foucher KC**, Aydemir B, Horras M, Huang CH, Chmell SJ. Aerobic capacity and fatigability are associated with physical activity in women with hip osteoarthritis. *Journal of Orthopaedic Research*, 39: 1236-1244, 2021.
5. The ORS Task Force on Diversity and Inclusion: Alliston T, **Foucher KC**, Frederick B, Hernandez CJ, Iatridis JC, Kozloff KM, Lewis KJ, Liu, XS, Mercer DM, Ochia R, Queen RM, Rinnac CM, van der Meulen MCH, Westendorf JJ. The Importance of Diversity, Equity and Inclusion in Orthopaedic Research. *Journal of Orthopaedic Research*, 38:1661–1665, 2020.
6. **Foucher KC**, Pater ML, Grabiner MD. Task-specific perturbation training improves the recovery stepping responses by women with knee osteoarthritis following laboratory-induced trips. *Journal of Orthopaedic Research*, 38:663–669, 2020.
7. Hall M, Chabra S, Shakoor N, Leurgans SE, Demirtas H, **Foucher KC**. Hip joint loading according to symptoms in people with early radiographic hip osteoarthritis. *Journal of Biomechanics*, 96:109347, 2019
8. Huang CH, **Foucher KC**. Step Length Asymmetry and its Associations with Mechanical Energy Exchange, Function, and Fatigue after Total Hip Replacement. *Journal of Orthopaedic Research*, 37:1563–1570, 2019.
9. Cinnamon CC, Longworth JA, Brunner JH, Chau VK, Ryan CA, Dapiton KR, Chmell SJ, **Foucher KC**. Static and Dynamic Abductor Function Are Both Associated With Physical Function 1 to 5 years after Total Hip Arthroplasty. *Clinical Biomechanics*, 67: 127-133, 2019.
10. Farkas G, Schlink B, Fogg L, **Foucher KC**, Wimmer M, Shakoor N. Gait asymmetries in symptomatic unilateral osteoarthritis of the hip and their association with radiographic severity and pain. *Hip International*, 29:209-214, 2019.
11. **Foucher KC**, Chmell SJ, Courtney CA. Duration of Symptoms is Associated with Conditioned Pain Modulation and Somatosensory Measures in Male and Female Patients with Knee Osteoarthritis. *Journal of Orthopaedic Research*, 37: 136-142, 2019.

12. Courtney CA, Atre P, **Foucher KC**, Alsouhibani AM. Hypoesthesia after anterior cruciate ligament reconstruction: The relationship between proprioception and vibration perception deficits in individuals greater than one year post-surgery. *The Knee*, 26: 194-200, 2019.
13. Brunner JH, **Foucher KC**. Associations between biomechanics and clinical outcomes before and after total hip arthroplasty differ in men and women. *Clinical Biomechanics*, 59: 167-173, 2018.
14. Skarupski KA, **Foucher KC**. Writing Accountability Groups (WAGs): A tool to help junior faculty members build sustainable writing habits. *Journal of Faculty Development*, 32: 1-8, 2018.
15. Longworth JA, Chlosta S, **Foucher KC**. Abnormal intersegment coordination during level walking at self-selected speeds before and after total hip arthroplasty. *Journal of Biomechanics*, 72:180-186, 2018.
16. **Foucher KC**, Cinnamon CC, Ryan CA, Chmell SJ, Dapiton K. Hip abductor strength and fatigue are associated with activity levels more than 1 year after total hip replacement. *Journal of Orthopaedic Research*, 36: 1519-1525, 2018.
17. **Foucher KC**. Sex-specific hip osteoarthritis-associated gait abnormalities: Alterations in dynamic hip abductor function differ in men and women. *Clinical Biomechanics*, 48: 24-29, 2017.
18. **Foucher KC**. Preoperative gait mechanics predict clinical response to total hip arthroplasty. *Journal of Orthopaedic Research*, 35(2): 366-76, 2017.
19. Stoykov ME, Skarupski KA, **Foucher KC**, Chubinskaya S. Junior Investigators Thinking about Quitting Research: A Survey, *American Journal of Occupational Therapy*, 71(2), 2017.
20. Riff AJ, Gross CE, **Foucher KC**, Kuo KN, Gitelis S. Acetabular Osteoarticular Allograft after Ewing Sarcoma Resection: A 15-Year Follow-up. *Journal of Bone and Joint Surgery Case Connector*, 6(4), e89, 2016.
21. **Foucher KC**. Gait abnormalities before and after total hip arthroplasty differ in men and women. *Journal of Biomechanics*, 49(14): 3582-86, 2016.
22. Lundberg HJ, Rojas IL, **Foucher KC**, Wimmer MA. Comparison of Antagonist Muscle Activity during Walking between Total Knee Replacement and Control Subjects using Unnormalized Electromyography. *The Journal of Arthroplasty*, 31(6): 1331-9, 2016.
23. **Foucher KC**. Identifying Clinically Meaningful Benchmarks for Gait Improvement after Total Hip Arthroplasty. *Journal of Orthopaedic Research*, 34(1):88-96, 2016.
24. **Foucher KC**, Freels S. Preoperative Factors Associated with Postoperative Gait Kinematics and Kinetics after Total Hip Arthroplasty. *Osteoarthritis and Cartilage*. 22(10); 1685-94, 2015.
25. Shakoor N, **Foucher KC**, Wimmer MA, Mikolaitis-Preuss RA, Fogg LF, Block JA. Asymmetries and relationships between dynamic loading, muscle strength, and proprioceptive acuity at the knees in symptomatic unilateral hip OA. *Arthritis Research and Therapy*, 16(6): 455, 2014.
26. Behery OA, **Foucher KC**. Are Harris Hip Scores and Gait Mechanics Related Before and After THA? *Clinical Orthopaedics and Related Research*, 472(11): 3452-61, 2014.
27. **Foucher KC**, Wimmer MA. Does hip implant positioning affect the peak external adduction moments of the healthy knees of subjects with total hip replacements? *Journal of Orthopaedic Research*, 31(8): 1187-94, 2013.
28. Matheney T, Sandell L, **Foucher K**, Lamontagne M, Grodzinsky AJ, Peters CL. Motion analysis, cartilage mechanics, and biology in femoroacetabular impingement: Current understanding and areas of future research. *Journal of the American Academy of Orthopaedic Surgeons*, 21 (Suppl. 1): S27-S32, 2013.
29. Shakoor N, Lidtke, RH, Wimmer, MA, Mikolaitis RA, **Foucher KC**, Thorp LE, Fogg LF, Block JA. Improvement in knee loading after use of specialized footwear for knee osteoarthritis: Results of a six-month pilot investigation. *Arthritis and Rheumatism*, 65(5): 1282-89, 2013.

30. **Foucher KC**, Schlink BR, Shakoor N, Wimmer MA. Sagittal plane hip motion reversals during walking are associated with disease severity and poorer function in subjects with hip osteoarthritis. *Journal of Biomechanics*, 45(8):1360-5, 2012.
31. Lundberg HJ, **Foucher KC**, Andriacchi TP, Wimmer MA. Direct comparison of measured and calculated total knee replacement force envelopes during walking in the presence of normal and abnormal gait patterns. *Journal of Biomechanics*, 45(6): 990-6, 2012.
32. Wimmer MA, Hildebrand M, Moio KC, **Foucher KC**, Della Valle CJ, Berger RA, Galante JO. Recovery after minimally invasive total hip arthroplasty: A gait study. *Minerva Orthopedica e Traumatologica*, 63(2): 101-10, 2012.
33. Shakoor N, Lee KJ, Fogg LF, Wimmer MA, **Foucher KC**, Mikoliat RA, Block JA. The relationship of vibratory perception with dynamic joint loading, radiographic severity, and pain in knee osteoarthritis. *Arthritis and Rheumatism*, 64:181-6, 2012.
34. **Foucher KC**, Wimmer MA. Contralateral hip and knee gait biomechanics are unchanged by total hip replacement for unilateral hip osteoarthritis. *Gait & Posture*, 35:61-5, 2012.
35. Shakoor N, Dua A, Thorp L, Wimmer MA, **Foucher KC**, Fogg LF, Block JA. Asymmetric loading and bone mineral density at the asymptomatic knees of subjects with unilateral hip OA, *Arthritis and Rheumatism*, 63:3853-8, 2011.
36. **Foucher KC**, Wimmer MA, Moio, KC, Hildebrand M, Berli MC, Walker MR, Berger RA, Galante JO. Time course and extent of functional recovery during the first postoperative year after minimally invasive total hip arthroplasty with two different surgical approaches. *Journal of Biomechanics*, 44:372-8, 2011.
37. **Foucher KC**, Thorp LE, Hildebrand M, Orozco D, Wimmer MA. Differences in preferred walking speeds in a gait lab compared to the "real world" after total hip replacement. *Archives of Physical Medicine and Rehabilitation*, 91:1390-5, 2010.
38. Thorp LE, Wimmer MA, **Foucher KC**, Sumner DR, Shakoor N, Block JA. The biomechanical effects of focused muscle training on medial knee loads in OA of the knee: a pilot, proof of concept study. *Journal of Musculoskeletal and Neuronal Interactions*, 10:166-73, 2010.
39. Shakoor N, Sengupta M, **Foucher KC**, Wimmer MA, Fogg LF, Block JA. The Effects of Common Footwear on Joint Loading in Osteoarthritis of the Knee. *Arthritis Care and Research*, 62:917-23, 2010.
40. **Foucher KC**, Hurwitz DE, Wimmer MA. The relative importance of gait vs. joint positioning on hip contact forces after total hip replacement. *Journal of Orthopaedic Research*, 27:1576-82, 2009.
41. Lundberg HJ, **Foucher KC**, Wimmer MA. A parametric approach to numerical modeling of TKR contact forces. *Journal of Biomechanics*, 42:541-5, 2009.
42. Rojas IL, Provencher MT, Bhatia S, **Foucher KC**, Bach B, Romeo A, Wimmer MA, Verma N. Biceps Activity during Windmill Softball Pitching: Injury Implications and Comparison to Overhand Throwing. *American Journal of Sports Medicine*, 37:558-65, 2009.
43. **Foucher KC**, Hurwitz DE, Wimmer MA. Do gait adaptations during stair climbing result in changes in implant forces in subjects with total hip replacements compared to normal subjects? *Clinical Biomechanics*, 23:754-61, 2008.
44. **Foucher KC**, Hurwitz DE, Wimmer MA. Preoperative gait adaptations persist one year after surgery in clinically well-functioning total hip replacement patients. *Journal of Biomechanics*, 40:3432-37, 2007.
45. Hurwitz DE, **Foucher KC**, Andriacchi TP. A new parametric approach for modeling hip forces during gait. *Journal of Biomechanics*, 36:113-9, 2003.
46. Hurwitz DE, **Foucher KC**, Sumner DR, Andriacchi TP, Rosenberg AG, Galante JO. The influence of walking mechanics on bone mineral density in the proximal femur in patients with hip osteoarthritis. *Journal of Biomechanics*, 31:919-25, 1998.

Book chapters:

1. Wimmer MA, **Foucher KC**, Malloy P, Nam D. “Biomechanics of Arthroplasty” in Basic Biomechanics of the Musculoskeletal System 5th edition, Nordin & Frankel eds. 2021, Lippincott Williams & Wilkins. pp 426-449.
2. **Foucher KC**. “Gait Pathomechanics in Hip Disease” in Diagnosis and Management of Hip Disease: Biological Basis of Clinical Care. Aaron RK. Ed. 2015, Springer International Publishing. pp 71-97.
3. **Foucher KC**, Wimmer MA, Andersson GBS, “Biomechanics of Arthroplasty” in Basic Biomechanics of the Musculoskeletal System 4th edition, Nordin & Frankel eds. 2011, Lippincott Williams & Wilkins. pp 404-425.

Peer-reviewed abstracts presented at national and international meetings:

1. Aydemir, B, **Foucher KC**. Effects of lower limb joint powers and kinesiophobia on physical activity in people with knee osteoarthritis. American Society of Biomechanics Annual Meeting, 2021, *Oral Presentation – Aydemir*
2. Huang CH, **Foucher KC**. Split-belt treadmill training improves gait efficiency in people with hip osteoarthritis. American Society of Biomechanics Annual Meeting, 2021, *Oral Presentation – Huang*
3. Huang CH, Aydemir B, **Foucher KC**. The Effect Of Split-belt Treadmill Training On Gait Efficiency In Hip Osteoarthritis Patients: Preliminary Study, American College of Sports Medicine Annual Meeting 2021, *Poster Presentation – Huang*
4. Huang CH, Aydemir B, **Foucher KC**. Sagittal Plane Ankle Kinetics are Associated with Dynamic Sagittal Plane Hip Range of Motion and Gait Efficiency in Older Adults with Hip Osteoarthritis, Orthopaedic Research Society Annual Meeting 2021, *Oral Presentation – Huang*
5. Aydemir B, **Foucher KC**. Kinesiophobia mediates the relationship between muscle strength and physical activity in people with knee osteoarthritis, Orthopaedic Research Society Annual Meeting 2021, *Poster Presentation – Aydemir*
6. **Foucher KC**, Aydemir B, Huang CH. Modifiable Functional Factors Associated With Reduced Physical Activity in Older Women With Hip Osteoarthritis, Orthopaedic Research Society Annual Meeting 2021, *Poster Presentation – Foucher*
7. **Foucher KC**, Aydemir B, Huang CH. Walking Energetics, Fatigue, and Physical Activity in People with Knee Osteoarthritis, American College of Rheumatology Annual Meeting, 2020, *Poster Presentation – Foucher*
8. Aydemir B, **Foucher KC**. Spatial gait characteristics are related to impaired hip abductor strength in women with hip osteoarthritis, American Society of Biomechanics Annual meeting, 2020, *Poster Presentation – Aydemir*
9. Huang CH, **Foucher KC**. Step Length Asymmetry is Associated with Gait Efficiency in Older Women with Hip Osteoarthritis, American Society of Biomechanics Annual meeting, 2020, *Poster Presentation – Huang*
10. **Foucher KC**, Aydemir B, Huang CH. Aerobic Capacity And Fatigability Are Associated With Physical Activity In People With Knee OA. 66th Annual Meeting, Orthopaedic Research Society, 2020, *Poster Presentation – Foucher*
11. **Foucher KC**, JA Wilson. Comparisons between gait characteristics of total hip arthroplasty and total knee arthroplasty candidates. Comparison Of Severity Of Frontal Plane Functional Deficits In Affected Joints Between TKA And THA Candidates. 66th Annual Meeting, Orthopaedic Research Society, 2020, *Poster Presentation – Foucher*
12. **Foucher KC**, Pater ML, Grabiner MD. The influence of knee osteoarthritis on the efficacy of trip-specific fall prevention perturbation training. 65th Annual Meeting, Orthopaedic Research Society, 2019, *Poster Presentation – Foucher*
13. Horras M, Aydemir B, Huang CH, **Foucher KC**. Fatigability, Aerobic Capacity and Physical Activity in Women with Hip Osteoarthritis. Orthopaedic Research Society, Great Lakes/Midwest Regional Symposium., 2019, *Oral Presentation – Horras*
14. Huang CH, **Foucher KC**. Step Length Asymmetry and its Associations with Gait Efficiency in Older Adults with Hip Osteoarthritis. Orthopaedic Research Society, Great Lakes/Midwest Regional Symposium., 2019, *Poster Presentation – Huang*
15. **Foucher KC**, Chmell SJ, Courtney CA. Knee Osteoarthritis Symptom Duration Is Associated with Conditioned Pain Modulation and Vibration Perception Threshold Impairment. American College of

- Rheumatology/Association of Rheumatology Health Professionals Annual Meeting, 2018, *Poster Presentation – Foucher*
16. Huang CH, **Foucher KC**. Step Length Asymmetry and its Associations with Mechanical Energy Exchange, Function, and Fatigue after Total Hip Replacement. 64th Annual Meeting, Orthopaedic Research Society, 2018. *Poster Presentation - Huang*
 17. Aydemir B, **Foucher KC**. Trunk Asymmetry during Walking is Associated with Lower Hip Abductor Strength and Activity Levels after Total Hip Replacement. 64th Annual Meeting, Orthopaedic Research Society, 2018. *Poster Presentation - Aydemir*
 18. **Foucher KC**. Examining Validity Of Patient-reported Outcomes Measurement Information System (PROMIS) Instruments In Community-dwellers With Total Hip Replacements. 64th Annual Meeting, Orthopaedic Research Society, 2018. *Poster Presentation - Foucher*
 19. **Foucher KC**, Chmell SJ, Courtney CA. Sex Differences in Descending Pain Inhibition in People with Symptomatic Knee Osteoarthritis. 63rd Annual Meeting, Orthopaedic Research Society, 2017. *Poster Presentation – Foucher*
 20. Cinnamon CC, Longworth JA, Brunner JH, Vhau VK, Ryan KR, Chmell SJ, **Foucher KC**. Hip Abductor Strength is Associated with both Performance Test-based and Self-reported Function after Total Hip Replacement. 63rd Annual Meeting, Orthopaedic Research Society, 2017. *Poster Presentation – Cinnamon*
 21. Longworth JA, Chlostra S, Dapiton KR, Tayag KA, **Foucher KC**. Inter-joint Coordination of Kinematics and Kinetics Before and After Total Hip Arthroplasty. 63rd Annual Meeting, Orthopaedic Research Society, 2017. *Oral Presentation – Longworth*
 22. Brunner JH, **Foucher KC**. Sex-Specific Associations Between Improvement in Gait Mechanics and Improvement in Pain, Function, and Abductor Strength after Total Hip Arthroplasty. American College of Rheumatology/Association of Rheumatology Health Professionals Annual Meeting, 2016, *Oral Presentation – Brunner*.
 23. **Foucher KC**. Gait Abnormalities Due to Hip Osteoarthritis Are Different in Men and Women. American College of Rheumatology/Association of Rheumatology Health Professionals Annual Meeting, 2016, *Poster Presentation – Foucher*
 24. **Foucher KC**. Sex-specific patterns of gait and functional recovery from total hip arthroplasty. 62nd annual meeting, Orthopaedic Research Society, 2016. *Poster Presentation*
 25. **Foucher KC**. Clinically Anchored Benchmarks for Gait Improvement after Total Hip Arthroplasty. 61st annual meeting, Orthopaedic Research Society, 2015. *Oral Presentation*
 26. Farkas GJ, Shakoor N, Lee S, Kawecki RC, **Foucher KC**, Espinoza Orias AA, Nho SJ. Somatosensory Deficits in Patients with Symptomatic Femoroacetabular Impingement. International Society for Hip Arthroscopy Annual Meeting, 2014. *e-Poster*.
 27. **Foucher KC**, Skarupski KA. Greater research confidence is associated with scholarly output. Association of American Medical Colleges Group on Faculty Affairs Annual Meeting, Boston MA, 2014. *Oral Presentation*.
 28. **Foucher KC**, Skarupski KA. Supporting faculty scholarship: factors associated with writing productivity. Association of American Medical Colleges Group on Faculty Affairs Annual Meeting, Boston MA, 2014. *Poster Presentation*.
 29. **Foucher KC**. Preoperative Gait Variables and Harris Hip Scores Predict Clinical Recovery After Total Hip Replacement. 60th annual meeting, Orthopaedic Research Society, 2014. *Poster Presentation*
 30. **Foucher KC**. Relationships between Preoperative Harris Hip Scores and Gait Improvement after Total Hip Replacement Differ in Men and Women. 60th annual meeting, Orthopaedic Research Society, 2014. *Poster Presentation*
 31. **Foucher KC**, Behery OA. Relationships between clinical outcome measures and gait variables before and after total hip arthroplasty. American College of Rheumatology/Association of Rheumatology Health Professionals Annual Meeting, 2013. *Oral Presentation*

32. Skarupski, KA, Stoykov ME, **Foucher KC**, Chubinskaya S. Are physician-scientists becoming an ‘endangered species’? Association of American Medical Colleges, Group on Faculty Affairs Professional Development Conference, 2013. *Oral Presentation – Skarupski*
33. Lundberg HJ, **Foucher KC**, Skarupski KA. Strategies for Enhancing Writing Accountability Groups within a Junior Faculty Research Mentoring Program, Association of American Medical Colleges, Group on Faculty Affairs Annual Meeting, Minneapolis, MN, 2013. (*Winner Best in class poster award*)
34. Behery OA, **Foucher KC**. Age, gender, and body mass index do not explain individual variability in clinical and gait recovery after total hip arthroplasty. Osteoarthritis Research Society International, World Congress on Osteoarthritis, 2013. *Oral Presentation – Foucher*
35. Chabra SS, **Foucher KC**. Hip disability and osteoarthritis outcome scores are directly related to gait variables in subjects with hip pain. Osteoarthritis Research Society International, World Congress on Osteoarthritis, 2013.
36. **Foucher KC**, Waldman G. Total hip replacement nonresponders with high baseline clinical scores have similar gait impairment as those with low baseline clinical scores. Osteoarthritis Research Society International, World Congress on Osteoarthritis, 2013. *Poster Presentation*
37. Waldman G, **Foucher KC**. Clinical and Biomechanical Characteristics of Total Hip Arthroplasty Responders and Nonresponders. American College of Rheumatology/Association of Rheumatology Health Professionals Annual Meeting, 2012. *Oral Presentation*
38. Chabra SS, Shakoor N, **Foucher KC**. Gait Differences Are Present in Subjects with Symptomatic Vs. Asymptomatic Mild Radiographic Hip Osteoarthritis. American College of Rheumatology/Association of Rheumatology Health Professionals Annual Meeting, 2012. (*Winner ACR/REF/Abbot Medical/Graduate Student Achievement Award*) *Poster Presentation – Chabra*
39. Shakoor N, Lidtke RH, Fogg LF, Mikolaitis RA, Wimmer MA, **Foucher KC**, Thorp LE, Block JA. Flexible Footwear Reduces Dynamic Joint Loads in Knee Osteoarthritis: Results of a 6 Month Randomized Controlled Trial. American College of Rheumatology/Association of Rheumatology Health Professionals Annual Meeting, 2012. *Poster Presentation*
40. **Foucher KC**, Skarupski KA. Writing more through peer-mentoring: developing and implementing a writing accountability group within a faculty mentoring program. Association of American Medical Colleges, Group on Faculty Affairs Professional Development Conference, 2012. *Poster Presentation*
41. **Foucher KC**, Wimmer MA. Lower preoperative hip adduction moments are associated with greater clinical and biomechanical recovery after total hip replacement. 58th Annual Meeting Orthopaedic Research Society, 2012. *Poster Presentation*
42. Mihai A, Wimmer MA, **Foucher KC**. The influence of gait abnormalities on minimum foot clearance during level walking before and after total hip replacement. 58th Annual Meeting Orthopaedic Research Society, 2012. *Poster Presentation*
43. Lundberg HJ, **Foucher KC**, Andriacchi TP, Wimmer MA. TKR Contact Forces for Normal and Abnormal Gait Patterns. 58th Annual Meeting Orthopaedic Research Society, 2012.
44. **Foucher KC**, Schlink BR, Shakoor N, Wimmer MA. Gait Biomechanics as Predictors of Hip Osteoarthritis Progression. American College of Rheumatology/Association of Rheumatology Health Professionals Annual Meeting, 2011. *Poster Presentation*
45. Schlink BR, Wimmer MA, **Foucher KC**. Hip motion patterns are associated with disease severity and reduced dynamic loading in hip osteoarthritis. 57th Annual Meeting Orthopaedic Research Society, 2011. *Oral Presentation*
46. **Foucher KC**, Galante JO, Berli MC, Berger RA, Wimmer MA. Gait adaptations and reconstructed joint geometry are associated with abnormal contralateral hip and knee loading after total hip replacement 57th Annual Meeting, Orthopaedic Research Society, 2011. *Poster Presentation* (New Investigator Recognition Award finalist)

47. Lundberg HJ, Rojas IL, **Foucher KC**, Wimmer MA. The Relationship between Muscle Activity and Gait Parameters for TKR Patients and Control Subjects 57th Annual Meeting, Orthopaedic Research Society, 2011.
48. Shakoor N, **Foucher KC**, Wimmer MA, Mikolaitis RA, Khandelwal S, Block JA. Gait alterations and their association with radiographic severity and pain in unilateral hip osteoarthritis. Osteoarthritis Research Society International, World Congress on Osteoarthritis, 2010.
49. **Foucher KC**, Wimmer MA, Moisisio KC, Hildebrand M, Berger RA, Galante JO. Full Activity Recovery but Incomplete Biomechanical Recovery after Minimally Invasive Total Hip Arthroplasty 56th Annual Meeting Orthopaedic Research Society, 2010. *Poster Presentation*
50. **Foucher KC**, Wimmer MA, Moisisio KC, Hildebrand M, Berger RA, Galante JO Recovery Rate and Extent after Two Minimally Invasive THA Approaches, American Academy of Orthopaedic Surgeons Annual Meeting, 2010. *Poster Presentation*
51. **Foucher KC**, Kannankeril G, Block JA, Shakoor N, Wimmer MA, Thorp LE. Gait Variability across the Spectrum of Knee Osteoarthritis, American College of Rheumatology/Association of Rheumatology Health Professionals, Annual Meeting 2009. *Poster Presentation*
52. **Foucher KC**, Orozco D, Berger RA, Wimmer MA. Relationships between habitual and laboratory walking speeds and clinical function after total hip replacement. 55th Annual Meeting Orthopaedic Research Society, 2009. *Poster Presentation*
53. Lundberg HJ, **Foucher KC**, Ngai V, Rojas IL, Swanson AJ, Wimmer MA. The influence of kinematic input variability on calculated knee joint contact forces. 55th Annual Meeting Orthopaedic Research Society, 2009.
54. **Foucher KC**, Hurwitz DE, Wimmer MA. Comparison of parametrically modeled hip forces to optimization based results and forces measured in vivo. 54th Annual Meeting Orthopaedic Research Society, 2008. *Poster Presentation*
55. Laurent MP, Mueller M, **Foucher KC**, Wimmer MA. Knee Joint Dynamics during Bicycling. A Comparison to Walking. 54th Annual Meeting Orthopaedic Research Society, 2008.
56. Rojas IL, Provencher MT, Bhatia S, **Foucher KC**, Bach B, Romeo A, Wimmer MA, Verma N. Windmill softball pitching vs. overhand throwing: Injury implications from biceps muscle activity. 54th Annual Meeting Orthopaedic Research Society, 2008.
57. Wimmer MA, Thorp LE, **Foucher KC**, Sumner DR, Shakoor N, Block JA. Hip Abductor Strengthening Reduces Medial Knee Loads and Palliates Knee Pain. Annual Meeting American College of Rheumatology/Association of Rheumatology Health Professionals, 2007.
58. Lidtke R, Wimmer MA, **Foucher KC**, Block JA. The Role of Rearfoot Mobility in the Long Term Response to Wedge Orthoses in Medial Knee OA. Annual Meeting American College of Rheumatology/Association of Rheumatology Health Professionals, 2007.
59. **Foucher KC**, Hurwitz DE, Wimmer MA. Gait adaptations and high implant twisting moments during stair climbing in subjects with total hip replacements. 31st Annual Meeting American Society of Biomechanics 2007. *Poster Presentation*
60. Trombley RM, **Foucher KC**, Berger RA, Wimmer MA. Gait adaptations and recovery rates following minimally invasive total hip replacement. 31st Annual Meeting American Society of Biomechanics 2007.
61. **Foucher KC**, Hurwitz DE, Wimmer MA. Gait adaptations are more important than positioning of the hip center in determining hip loading after total hip replacement surgery. 53rd Annual Meeting Orthopaedic Research Society, 2007.
62. Lidtke R, Goker B, Muehleman C, Wimmer M, **Foucher, KC**, Block, J. Lower extremity structural alignment and mobility determines if valgus wedged orthoses reduce knee adduction moments in medial knee osteoarthritis (OA). 53rd Annual Meeting Orthopaedic Research Society, 2007.

63. Wimmer MA, Thorp L, **Foucher KC**, Sumner DR, Block JA. Medial Knee Osteoarthritis (OA) is Associated with Reduced Hip Internal Rotation Moments. Annual Meeting American College of Rheumatology/Association of Rheumatology Health Professionals, 2006.
64. Lidtke R, Muehleman C, **Foucher K**, Wimmer M, Block J. Motion at Rearfoot Determines if Valgus Wedged Orthosis Reduce Knee Adduction Moments in Medial Knee Osteoarthritis (OA). Annual Meeting American College of Rheumatology/Association of Rheumatology Health Professionals 2006.
65. Lidtke R, Goker B, Muehleman C, Wimmer M, **Foucher K**, Block J. Rearfoot mobility determines if valgus wedged orthoses reduce knee adduction moments in medial knee osteoarthritis (OA). Osteoarthritis Research Society International, World Congress on Osteoarthritis, 2006.
66. Wimmer MA, Thorp LE, **Foucher KC**, Sumner DR, Block JA. Medial compartment loading and weak hip abductors in patients with knee OA: a pilot study of the effect of hip strengthening on joint loading. Osteoarthritis Research Society International, World Congress on Osteoarthritis, 2006.
67. **Foucher KC**, Wimmer MA, Hurwitz DE. Relationships between reconstructed hip center and hip forces after accounting for the effect of gait adaptations. 30th Annual Meeting American Society of Biomechanics, 2006. *Oral Presentation*
68. **Foucher KC**, Wimmer MA, Hurwitz DE. The influence of hip muscle activity on modeled hip contact forces during walking in subjects with total hip replacements. 5th World Congress of Biomechanics, 2006. *Oral Presentation*
69. **Foucher KC**, Wimmer MA, Hurwitz DE. Inter- and intra-subject variability of modeled hip forces in subjects with total hip replacements. 5th World Congress of Biomechanics, 2006. *Oral Presentation*
70. **Foucher KC**, Hurwitz DE, Andriacchi TP. Abductor and antagonist muscle force distributions substantially influence modeled hip forces in subjects with total hip replacements. 48th Annual Meeting Orthopaedic Research Society, 2002. *Poster Presentation*
71. **Foucher KC**, Hurwitz DE. An Evaluation of Hip Joint Contact Forces and Rotatory Torques During Walking and Stair Climbing. 5th Annual Meeting, Gait and Clinical Movement Analysis Society, 2000. *Poster Presentation*
72. **Foucher KC**, Hurwitz DE, Andriacchi TP. A new analytical parametric model that accurately predicts hip joint forces during normal and pathological gait. 46th Annual Meeting Orthopaedic Research Society, 2000. *Poster Presentation*
73. Lowinger DA, Hurwitz DE, **Foucher KC**, Goker B, Sumner DR, Block JA. Rate of progression of hip osteoarthritis relates to increased joint loads during gait. 46th Annual Meeting Orthopaedic Research Society, 2000.
74. **Foucher KC**, Hurwitz DE, Andriacchi TP. Gait adaptations in postoperative total hip replacement patients are associated with reduced hip contact force. 23rd Annual meeting of the American Society of Biomechanics 1999. *Oral Presentation (Winner Musculoskeletal Research Center of the University of Pittsburgh Medical Center Award)*
75. Hurwitz DE, **Foucher KC**. Implications of hip joint forces during gait. 12th Annual International Symposium for Technology in Arthroplasty, 1999.
76. **Foucher KC**, Hurwitz DE, Andriacchi TP, Rosenberg AG, Galante JO, Jacobs JJ. Hip joint load alterations in total hip replacement patients, American Society of Mechanical Engineering, Summer Bioengineering Conference, 1999. *Poster Presentation*
77. Buchanan B, Hurwitz DE, **Foucher KC**, Rosenberg AG, Galante JO, Andriacchi TP. Gait adaptations in patients with total hip replacements persist over time. 45th Annual Meeting Orthopaedic Research Society, 1999.
78. **Foucher KC**, Hurwitz DE, Sumner DR, Andriacchi TP, Rosenberg AG. An evaluation of muscle force predictions at the hip joint. International Mechanical Engineering Congress and Exposition, Bioengineering Division, 1998. *Poster Presentation*

79. **Foucher KC**, Soomekh D, Hurwitz DE, Andriacchi TP, Rosenberg AG, Galante JO. Factors influencing variation in gait adaptations after total hip replacement. 3rd Annual Meeting North American Society of Gait and Clinical Movement Analysis, Gait and Posture, 7(2):158-9, 1998. *Oral Presentation*.
80. Hurwitz DE, **Foucher KC**, Sumner DR, Andriacchi TP, Rosenberg AG. Bone density changes in osteoarthritis are associated with hip joint loading. 44th Annual Meeting Orthopaedic Research Society, 25, 1998.
81. Hurwitz DE, **Foucher KC**, Andriacchi TP, Rosenberg AG, Galante JO. Similarities between gait adaptations in preoperative and postoperative total hip replacement patients. American Society of Mechanical Summer Bioengineering Conference, 1997.
82. Hurwitz DE, **Foucher KC**, Sumner DR, Andriacchi TP, Galante JO, Rosenberg AG. Greater trochanter bone loss in preoperative total hip replacement patients is related to the hip adduction moment during gait. 21st Annual Meeting of American Society of Biomechanics, 252-3, 1997.
83. **Foucher KC**, Hurwitz DE, Andriacchi TP, Rosenberg AG, Galante JO. Reductions in hip contact forces due to gait adaptations in preoperative total hip replacement patients persist even if antagonistic muscle activity is increased. 21st Annual Meeting of American Society of Biomechanics, 192-3, 1997. *Poster Presentation*
84. Hurwitz DE, Sugar DA, Rottier F, **Foucher KC**, Sumner DR, Andriacchi TP. Dynamic Medial Loads During Gait Influence Tibial Bone Distribution. American Society of Mechanical Engineering, Summer Bioengineering Conference, BED vol 35:503-4, 1997. *Oral Presentation*.
85. Hurwitz DE, Sugar DA, Rottier F, **Foucher KC**, Sumner DR, Andriacchi TP, Rosenberg AG, Galante JO. Changes in Tibial Bone due to Dynamic Loading During Gait. 43rd Annual Meeting Orthopaedic Research Society, 1997.