

CURRICULUM VITAE
MARY KENT HASTINGS, PT, DPT, MSCI, ATC

DATE: June 2023

CONTACT INFORMATION:

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PRESENT POSITION:

Professor **Washington University School of Medicine** 2017-present
Program in Physical Therapy and Orthopaedic Surgery
St. Louis, MO

EDUCATION:

<u>Degree</u>	<u>Institution</u>	<u>Field</u>	<u>Date(s)</u>
BS	University of Illinois Champaign/Urbana, IL	Kinesiology	1990
	Virginia Polytechnic Institute Blacksburg, VA	Exercise Physiology	1990-91
MS	Washington University St. Louis, MO	Physical Therapy	1993
DPT	Washington University St. Louis, MO	Physical Therapy	2002
MS	Washington University St. Louis, MO	Clinical Investigation	2011

ACADEMIC POSITIONS / EMPLOYMENT:

<u>Position</u>	<u>Institution/Facility</u>	<u>Date(s)</u>
Graduate Assistant-Athletic Trainer	Virginia Polytechnic Institute Blackburg, VA	1990-1991
Laboratory Teaching Assistant	Washington University Program in Physical Therapy St. Louis, MO	1994-1999
Instructor	Washington University School of Medicine Program in Physical Therapy St. Louis, MO	1999-2004
Assistant Professor	Washington University School of Medicine Program in Physical Therapy and Orthopaedic Surgery St. Louis, MO	2005-2011
Associate Professor	Washington University School of Medicine Program in Physical Therapy and Orthopaedic Surgery St. Louis, MO	2012-2017

Professor **Washington University School of Medicine** 2017-present
Program in Physical Therapy and Orthopaedic Surgery
St. Louis, MO

CLINICAL TITLE AND RESPONSIBILITIES:

Barnes-Jewish Hospital, St. Louis, MO: Staff Physical Therapist 1994-1999
Responsibilities: Provide care for patients with musculoskeletal conditions.

The Rehabilitation Hospital of St. Louis (MO): Physical Therapist 1999-2001
Responsibilities: Provide care for patients with musculoskeletal conditions.

Washington University Physical Therapy Clinics: Physical Therapist 2001-2011
Responsibilities: Provide clinical care for musculoskeletal foot and ankle conditions.

TEACHING TITLES AND RESPONSIBILITIES:

Current-Professional Clinical Doctorate (DPT) Curriculum (WUSM)

Coach

M3 –M6 Instructor:

Foot and Ankle Kinesiology

Foot and Ankle Anatomy

Spatiotemporal, Kinematics, and Kinetics of Gait

Diagnosis and management of foot and ankle musculoskeletal conditions

Diabetic foot screening and care

Evidence analysis

Threads:

Diagnosis and Management of Movement Problems (Member)

Imaging (Lead)

Legacy Curriculum:

Essential Skills in Physical Therapy II (PT627)

Participating Instructor Mobilization Unit: 1994-present

Diagnosis and Management of Musculoskeletal Conditions in PT III (PT638)

Participating Instructor Foot and Ankle Unit: 1996-present

Case Integration I and II (PT628, PT642)

Participating Instructor and small group leader 2008-present

Case Integration III/DEA III (PT654)

Participating Instructor and student mentor 2010-present

Current- Movement Science Program (PhD) Curriculum

Bioenergetics

Participating Instructor: 2019-present

Program Seminar

Grant writing/review: 2018-present

UNIVERSITY AND HOSPITAL APPOINTMENTS AND COMMITTEES:

Program in Physical Therapy Committees

Admissions Committee, Professional Curriculum 2003-present

1997-1998

Committee on Academic Evaluation of Student (CAES) Committee, Member 1999-2010

Faculty Recruitment Committee, Member	2004-2005 2017-2019
Research Advisory Council, Member	2004-present
Clinical Practice Advisory Council, Member	2007-2010
Washington University Program in Physical Therapy, Curriculum Architecture	2019

Washington University School of Medicine Committees

Clinical and Translational Research Funding Program, Grant Reviewer	2014-2016
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LICENSURE/REGISTRATION:

Missouri Board of Registration for the Healing Arts	
Athletic training registration number: TR 101230	1991-present
Physical therapist license number: PT 104981	1994-present

HONORS AND AWARDS:

Bronze Tablet, University of Illinois, Champaign-Urbana, IL	1990
Director's Award, Washington University Medical School, Program in Physical Therapy	1993
Roger A. Mann Award for the Outstanding Clinical Study presented at the American Orthopaedic Foot and Ankle Society annual meeting. Controlled Prospective Randomized Clinical Trial on the Effect of Tendo-Achilles Lengthening on Patients With DM and a Neuropathic Plantar Ulcer. Johnson Jeffrey E, Mueller Michael J, Hastings Mary K, Sinacore David R, Engsborg Jack R	2002
Chattanooga Research Award: APTA-Best article on clinical research published in <i>Physical Therapy</i> in 2007	2007
Program in Physical Therapy Graduation Speaker Washington University School of Medicine Title: "The Exams of Life"	2007
ERRIS (Enhancing Rehabilitation Research in the South) Grant Writing Workshop	2011
Hobson Abstract Award at the Diabetic Limb Salvage Conference 1 st Place: Progressive Foot Deformity Evident in Neuropathic (Charcot) Arthropathy at One and Two Years. Hastings Mary K., Johnson Jeffrey E., Strube Michael J., Hildebolt Charles F., Bohnert Kathryn L., Prior Fred W., Sinacore David R. 2 nd Place: "Volumetric Analysis of Intrinsic Muscle Atrophy in the Diabetic Neuropathic Foot." Cheuy Victor A., Commean Paul K., Hastings Mary K., Mueller Michael J.	2012
Roger A. Mann Award for the Outstanding Clinical Study presented at the American Orthopaedic Foot and Ankle Society annual meeting. Kinetics and Kinematics after the Bridle Procedure for Treatment of Traumatic Foot Drop. Hastings Mary K, Sinacore David R, Woodburn Jim, Paxton E Scott, Klein Sandra E, McCormick Jeremy J, Bohnert Kathryn L, Beckert Krista S, Stein Michelle L, Strube Michael J, Johnson Jeffrey E.	2013

Program in Physical Therapy Graduation Speaker Washington University School of Medicine Title: “Smart, Active, Confident, and Cute; sometimes...maybe”	2016
Jack Walker Award: APTA-published study in Physical Therapy Journal 2017 presenting novel and innovative research	2017
Outstanding Faculty Mentor Award, Washington University	2020

EDITORIAL AND EXTERNAL GRANT REVIEWER RESPONSIBILITIES:

Journal of Orthopaedic and Sports Physical Therapy
Physical Therapy Journal
Diabetic Medicine
Muscle and Nerve
Journal of Biomechanics
Clinical Biomechanics
 Medical Research Councils UK
 National Institute of Health
 Diabetes Complications Consortium
 Morgan State Health-Related Community-Based Participatory Research Small Grant

NATIONAL PANELS, COMMITTEES, BOARDS

Committee member of Foot and Ankle Task Force	2012
International Working Group on the Diabetic Foot-Charcot	2021-present

COMMUNITY SERVICE CONTRIBUTIONS

Professional Societies and Organizations	
National Athletic Trainers’ Association, Member	1990-present
Missouri Physical Therapy Association, Member	1999-present
Co-Chair of the Research Section	2005-2010
American Physical Therapy Association, Member	1999-present 1991-1995
Training in Grantsmanship for Rehabilitation Research, Mentor	2017-present

MAJOR INVITED PROFESSORSHIPS AND LECTURESHIPS:

Topic: Diabetes Related Foot Complications

“Healing rates by location of diabetic neuropathic (charcot) fractures using total contact casting”
 Missouri Physical Therapy Association Spring Meeting
 Osage Beach, MO, March 1997

“Hammer toe deformity, soft tissue density, and peak plantar pressure in subjects with and without diabetes”
 Marilyn Gossman Graduate Student Seminar, APTA Combined Sections Meeting
 Boston, MA, February 2002

“Bone density measures in patients with diabetes mellitus, peripheral neuropathy, and characteristic patterns
 of mid tarsal joint deformities”
 APTA Combined Sections Meeting
 Nashville, TN, February 2004

“Tarsal and metatarsal bone density assessment using volumetric quantitative computed tomography in subjects with and without charcot changes”
APTA Combined Sections Meeting
New Orleans, LA, February 2005

“Effect of Metatarsal Pad Location on Plantar Pressure in People with Diabetes and Peripheral Neuropathy”
APTA Combined Sections Meeting
San Diego, CA, February 2006

“Research in Footwear and Orthoses in Individuals with Diabetes Mellitus”
Podiatric Footwear Association
Atlanta, Georgia, November 2006

“Unloading Plantar Ulcerations-Review of Research and Demonstration”
American Orthotic & Prosthetic Associations National Assembly
Chicago, IL, September 2008

“Radiographic Correlates of Charcot Neuroarthropathic Deformity Reflect Midfoot Function and Calcaneal Bone Mineral Density”
NIH Workshop: Charcot Neuroarthropathy: Recent Progress and Future Directions
Washington D.C., September 2008 and
APTA Combined Sections Meeting
Las Vegas, NV, February 2009

“Botulinum Toxin Effect on Plantarflexor Muscle Strength and Plantar Pressure”
APTA Combined Sections Meeting, New Orleans, LA 2011
Washington University Research Symposium, October 27, 2010
Physical Therapy Seminar Series, April 20, 2010

“Progressive Foot Deformity in Neuropathic Charcot Arthropathy at One and Two Years”
APTA Combined Sections Meeting
Chicago, IL 2012

“Unloading Plantar Ulcerations in Diabetes: Review of Research and Interactive Session”
Undersea & Hyperbaric Medical Society
St. Louis, MO 2012

“Heel Rise Kinetics and Kinematics in Individuals with Diabetes Related Foot Deformity”
APTA Combined Sections Meeting
San Diego, CA 2013

“Leg muscle and fat volumes are associated with muscle performance in individuals with diabetes mellitus and peripheral neuropathy” APTA Combined Sections Meeting
Las Vegas, NV 2014

“Exercise for Diabetic Neuropathy: A Paradigm Shift” APTA Combined Sections Meeting,
Indianapolis, IN 2015

“Biomechanical contributions to acquired foot deformity in diabetes”
International Society of Biomechanics
Glasgow UK 2015

“Physical Therapy Management of People with Diabetes”
Pennsylvania Physical Therapy Association Annual Conference
Seven Springs Mountain Resort, PA 2017

“Diabetes: Put your best foot forward”

Keynote speaker: Wayne State University Physical Therapy Research Symposium
Detroit MI 2018

“PT from head (motor learning, pain psychology) to toe (foot & ankle mechanics)”

Panel Presenter: Mary K. Hastings, Ruth L. Chimenti, Beth E. Fisher.

Combined Sections Meeting

Washington, DC, 2019

“Muscle, Joint, and Movement Deterioration Contributing to Neuropathic Forefoot Deformity: Intervention Outcomes”

Research Seminar, Washington University Program in Physical Therapy

St. Louis MO, 2019

“Forefoot Ulcer Management”

American Orthopaedic Foot & Ankle Society Annual Meeting

Chicago IL 2019

“Diabetes and Foot Strength”

American Orthopaedic Foot & Ankle Society Annual Meeting

Chicago IL 2019

“Physical Therapist’s Role in Diabetes Prevention and Management”

Podcast: Yumlish June 2021

“The Way You Move: A Continuing Education Course to Benefit Sustainable Therapy”

Virtual Conference September 2021

“Diabetes: Focus on Function”

Pedorthic Footcare Association Annual Virtual Symposium 2021

“Diabetic foot update-from bench to bedside”

Combined sections meeting, San Antonio TX, 2022

“Keeping your best foot forward: Foot and ankle in the older adult”

Infinity Rehab Continuing Education 2022

Topic: Movement Impairments of the Foot and Ankle

“Foot and ankle movement impairment syndromes”

Diagnosis and Treatment of Movement System Impairment Syndromes: Lower Quarter
Advanced Application

Washington University Program in Physical Therapy

St. Louis MO, 2002, 2004-Present

“Foot and ankle movement impairment syndromes”

Alumni Day, Washington University Program in Physical Therapy

St. Louis MO, September 2005

“Movement system impairment syndromes of the foot/ankle with applications of the physical stress theory”

Annual Conference & Exposition of the APTA

Orlando FL, June 2006

“The Forgotten Midfoot: Advances in Research Guiding Intervention”

APTA Combined Sections Meeting

Anaheim CA 2016

“Getting back in the game-PT for Tendon/ligament injuries”
American Orthopaedic Foot & Ankle Society, Complete Foot Care Course
St. Louis MO 2016

“PT from head (motor learning, pain psychology) to toe (foot & ankle biomechanics)”
APTA Combined Sections Meeting
Washington DC 2019

“Person-specific Care for Individuals with Foot and Ankle Dysfunction: A Roadmap Beyond Localized Tissue Damage”
APTA Combined Sections Meeting
San Diego CA 2023

Topic: Physical Therapy Diagnoses

“Knee”
Diagnosis Rounds
Washington University Program in Physical Therapy
St. Louis MO, November 2005

Topic: Gait Biomechanics

“Gait Analysis: Implications for the evaluation and treatment of chronic foot and ankle pain”
NATA National Convention
St. Louis, MO, June 2003

“Biomechanics of the lower extremity during gait”
Pedorthic Footwear Association
Indianapolis, IN, October 2005

“Kinetics and Kinematics after the Bridle Procedure for Treatment of Traumatic Foot Drop”
American Orthopaedic Foot and Ankle Society annual meeting
Hollywood, FL, July 2013

“Stand on your own two feet”- Foot Biomechanics and Gait Analysis
American Orthopaedic Foot & Ankle Society, Complete Foot Care Course
St. Louis, MO 2016

Topic: Evidence Analysis

“Tips for Finding, Analyzing, and Applying Evidence to Practice”
APTA Combined Sections Meeting
Las Vegas, NV, February 2009

Topic: Career Development

“Research Funding Symposium Part 2: Perspectives from Funded PT Researchers
Panel Presenter
Combined Sections Meeting
Washington, DC, 2019

CONSULTING RELATIONSHIPS ANDBOARD MEMBERSHIPS:

Dr. Scholl’s Professional Council, Member	2006-2013
Dr. Scholl’s Consultant	2009-2017

RESEARCH SUPPORT

Active:

Principal Investigator

Chronic Kidney Disease-Mineral Bone Disorder (CKD-MBD) Syndrome in the Diabetic, Neuropathic Foot
NIH 2R01 DK107809-06

9/1/2023-8/31/2028

Co-Investigator

Long Term Outcomes for Modified Oblique Keller Capsular Interposition Arthroplasty (MOKCIA) for the treatment of Hallux Rigidus

AOFAS

5/1/2023-4/30/2024

\$20,000

Mentor

Walking Function in Individuals with Diabetic Peripheral Neuropathy: Biomechanical Mechanisms and Implications for Clinical Outcomes and Gait Retraining

PI: Nicole Kristen Rendos

NIH K01

07/01/2022 – 06/30/2027

\$654,425.00

Completed:

Co-Investigator

Visualizing the Diabetic Foot to Optimize Orthotic Fitting

PI: Michael Mueller, PhD, PT

Source: NIH/NICHD/ NCMRR (RO1 HD036895)

January 1, 1998 – November 30, 2001

Total Cost: \$925,166

Co-Investigator

Achilles Tendon Lengthening on Patients with Diabetes

PI: Michael Mueller, PhD, PT

Source: NIH/NICHD/NCMRR (RO1 HD036802)

January 1, 1999 – May 30, 2004

Total Cost: \$756,563

Co-Investigator

Optimal Off-Loading Therapy for Healing Diabetic Ulcers

PI: David Sinacore, PhD, PT

Source: NIH/NIDDK (RO1 DK059224)

April 1, 2001 – March 31, 2005

Total Cost: \$570,000

Co-Investigator

Visualizing the Diabetic Foot to Optimize Orthotic Fitting

PI: Michael Mueller, PhD, PT

Source: NIH/NCMRR (2 R01 HD036895)

December 1, 2002 – November 30, 2008

Total Cost: \$995,840

Principal Investigator
Botulinum Toxin's Effects on Plantar Ulcer Recurrence
PI: Mary Hastings, PT, DPT, ATC
Source: NIH/NICH/NCMRR (R21 HD048972)
January 1, 2005 – December 31, 2008
Total Cost: \$275,000

Co-Investigator
Biomarkers Development for Diabetic Complications
PI: Fred Prior PhD/Dave Sinacore PhD, PT
Source: NIH/ NIDDK (R21 DK079457)
August 1, 2007 – July 31, 2010
Total Cost: \$550,000

Co-Investigator
Effects of Weight Bearing exercise on People with Diabetes and Neuropathic Feet
PI: Michael Mueller, PhD, PT
Source: NIH/NICH/National Center for Medical Rehabilitation Research (R21 HD048972)
May 2009 – April 2010
Total Cost: \$275,000

Principal Investigator
Protocol development grant
Source: Center for Clinical Imaging Research, Washington University School of Medicine
September 1, 2009 – March 1, 2010

Clinical Scientist Scholar
Project Title: Biomechanical Contributions to Acquired Foot Deformity in Diabetes
PI: Michael Mueller PT, PhD
Source: Comprehensive Opportunities in Rehabilitation Research Training (CORRT)/NIH/NICHD, NCMRR, NINDS (K12 HD055931)
September 1, 2009 – August 31, 2014
Total Cost: Total grant \$4,626,510 Hastings portion \$285,170

Postdoctoral Scholar
Research Education, Training and Career Development Clinical and Translational Science Award
PI: Brad Evanoff MD, MPH
Source: Washington University Institute of Clinical and Translational Sciences (CTSA)/NCRR/NIH UL1 RR 024992-01
October 1, 2009 – May 31, 2011

Co-Investigator
Outcomes of the Bridle procedure for the treatment of traumatic foot drop
PI: Jeffrey Johnson
Source: Midwest Stone Institute
October 2009 – May 2012

Principal Investigator
C-Motion Visual 3D Software Training
Source: Program in Physical Therapy, Washington University School of Medicine
April 14, 2010 – December 20, 2010
Total Cost: \$3,700

Principal Investigator

Multi-segmental Kinematic Assessment of Foot Motion During Walking

PI: Mary Hastings, PT, DPT, ATC

Source: Program in Physical Therapy, Washington University School of Medicine

April 14, 2010 – December 1, 2010

Total Cost: \$1,500

Principal Investigator

Carbon Fiber Ankle Foot Orthosis Design Optimization

PI: Mary Hastings, PT, DPT, ATC

Source: Program in Physical Therapy, Washington University School of Medicine

November 21, 2011 – December 1, 2011

Total Cost: \$2,000

Principal Investigator

Project Title: Effects of Discomfort and Lower Extremity Fatigue on Gait and Activity Parameters

PI: Mary Hastings, PT, DPT, ATC

Source: Dr. Scholl's

July 20, 2011 – January 31, 2012

Total Cost: \$30,000

Mentor

Project Title: Foot progression angle in individuals with diabetes and peripheral neuropathy

PI: Ericka Merriwether

Source: NIH/NIDDK (F31 DK088512-01A1)

July 1, 2012 – June 30, 2014

Total Cost: \$58,848

Co-Investigator

Project Title: MRI Methods for the Assessment of Skeletal Muscle Oxygenation

Co-PIs: Jie Zheng PhD and Michael Mueller PT, PhD

Source: NIH CTSA (UL1 TR000448)

August 23, 2012 – August 22, 2013

Total Cost: \$9,844.00

Mentor

Project Title: Foot progression angle in individuals with diabetes and peripheral neuropathy

PI: Ericka Merriwether

Source: Foundation for Physical Therapy (PODSII)

September 1, 2012 – August 31, 2013

Total Cost: \$15,000

Principal Investigator

Project Title: Effects of Bump Insole Intervention on Balance

Source: Dr. Scholl's

December 30, 2012-December 29, 2013

Total Cost: \$40,732

Mentor

Project Title: Contributing factors to forefoot deformity in the diabetic, neuropathic foot.

PI: Victor Cheuy

Source: NIH/NIDDK (F31 DK101286)

August 2014-July 2016

Co-Investigator

Project Title: Diabetic upper extremity pathophysiology, limited joint mobility and disability

PI: Michael Mueller PT, PhD

Sources: NIH/NIDDK (R21 DK100793)

September 1, 2014-August 31, 2017

Total Cost: \$419,375

Co-Investigator

Project Title: Characterization of microcirculatory function in diabetic leg and foot with MRI

PI: Jie Zheng, PhD

Source: NIH/ NIAMS (R21 AR065672)

July 1, 2014-June 30, 2017

Total Cost: \$250,000

Co-Principal Investigator

Project Title: Carbon fiber off-loading orthosis

PI: Mary Hastings PT, DPT, MSCI and Mark Wilson, Pros

NIH/NIDDK R41 DK109731

5/24/16-5/23/2017

Total Cost: \$186,737

Co-Principal Investigator

The role of intermuscular fat in diabetic muscle pathology

Source: Program in Physical Therapy, Washington University School of Medicine

April 27, 2015 – April 26, 2017

Total Cost: \$3,000

Co-Investigator

Project Title: Defining the Cellular Basis for Poor Muscle Performance in Diabetic Peripheral Neuropathy

American Orthopaedic Foot and Ankle Society

7/1/17-6/30/2018

Total Cost: \$45,800

Mentor

Project Title: Diabetes-related tendon changes: Integrating ex vivo and in vivo approaches

Principle Investigator: Jennifer Zellers, PhD

NIH/NIDDK F32 DK123916

9/16/2019-9/25/2021

Amount: \$122,836.00

Principal Investigator

Project Title: Muscle, joint and movement deterioration contributing to neuropathic forefoot deformity

NIH/NIDDK R01 DK107809

3/2016-2/28/2021

Total Cost: \$1,578,563

Co-Principal Investigator

Project Title: Microcirculatory function in diabetic foot muscles with MRI

Co-PI: Jie Zheng, PhD

NIH/NIDDK RO1 DK105322

4/1/2016 – 3/31/2020

Total Cost: \$2,236,156

Co-Principal Investigator

In Vivo Tendon Structure and Function in Individuals With and Without Diabetes

Source: Program in Physical Therapy, Washington University School of Medicine

June 2019 – June 2021

Total Cost: \$1,995

Principal Investigator

Adaptive capacity of diabetic neuropathic muscle: Pilot study

ICTS (\$5,000)/MIR (\$12,500)/Physical Therapy Research Division (\$2,135)

TRAINEE/MENTEE/SPONSORSHIP RECORD

Student Advisement (DPT)

Melissa Stevens: “A Treatment Guideline for a Patient with an Osteochondritis Desiccans Lesions of the Talus” May 2004 (DPT)

Gretchen Leff: “An application of the physical stress theory to the rehabilitation of complex foot/ankle injuries with prolonged immobilization in a post-menopausal female: A case report” Complete April 2014 (DPT)

Research Advisement (PhD Students/Post-Doctoral Fellows/Residents)

Nicole Mercer Bolton MD, PT: Radiographic measures of foot alignment. 2010

Scott Paxton MD: Radiographic measures of foot alignment. 2010

Ericka Merriwether DPT, ATC: Ankle/Foot biomechanics including use of multi-segmental foot kinematic analysis. 2011-2014

Victor Cheuy, MS, BS: Ankle/Foot biomechanics including use of multi-segmental foot kinematic analysis. 2013-2015

Hyo-Jung Jeong, PT, BS: Ankle/Foot biomechanics. 2016-2021

Jennifer Zellers, DPT, PhD: Diabetes related tendon changes. 2018-2021

Annalisa Na, DPT, PhD: Diabetes associate complications in total knee replacement rehabilitation 2018-2022

Nicole Rendos, BS, MEd PhD: Walking Function in Individuals with Diabetic Peripheral Neuropathy: Biomechanical Mechanisms and Implications for Clinical Outcomes and Gait Retraining. 2022-present

Hyo Jung Jeong, PT, PhD: Bone density and grant writing and management

Training In Grantsmanship for Rehabilitation Research (TIGRR) program (NIH/NICHHD 2R25HD074546-07):

Rashelle Hoffman PT, DPT, PhD, GCS (2023)

Molly Baumann, PhD (2023)

Allison Cogan PhD, OTR/L (2022)

Reivian Berrios Barillas PT, DPT, PhD (2022)

Stephanie Di Stasi PT, PhD (2021)

Chun-Kai Huang PhD (2021)

Devos Hannes (2020)

Federico Pozzi PT, PhD (2020)

Liang-Ching Tsai, PT, PhD (2019)

Alison Chang DPT (2019)

Prakash Jayabalan MD, PhD (2018)

Jo Armour-Smith PT, PhD, OCS (2018)

Meryl Alappattu DPT, PhD (2017)

David Logerstedt PT, MA, PhD (2017)

PATENT:

#60/957,238 – Multi-Plug Design Shoe Insole (Provisional)

PUBLICATIONS:

Peer Reviewed Manuscripts:

Sinacore DR, Mueller MJ, **Kent ME**, Elser T, Rubinow C. Healing rates by location of diabetic neuropathic (charcot) fractures using total contact casting. *Journal of Orthopaedic and Sports Physical Therapy*. 1997;25(1):63. PMID: 9017353

Hastings MK, Mueller MJ, Sinacore DR, Salsich GB, Engsberg JR, Johnson JE. Effects of a tendo-achilles lengthening procedure on muscle function and gait characteristics in a patient with diabetes mellitus. *Journal of Orthopaedic and Sports Physical Therapy*. 2000;30(2):85-90. PMID: 10693086

Klaesner JW, Commean PK, **Hastings MK**, Zou D, Mueller MJ. Accuracy and reliability testing of a portable soft tissue indenter. *IEEE Transactions on Neural Systems and Rehabilitation Engineering*. 2001;9(2):232-240. PMID: 11474976

Klaesner JW, **Hastings MK**, Zou D, Lewis C, Mueller MJ. Plantar tissue stiffness in patients with diabetes mellitus and peripheral neuropathy. *Archives of Physical Medicine & Rehabilitation*. 2002;83(12):1796-1801. PMID: 12474190

Mueller MJ, Sinacore DR, **Hastings MK**, Strube MJ, Johnson JE. Effect of Achilles tendon lengthening on neuropathic plantar ulcers. A randomized clinical trial. *Journal of Bone and Joint Surgery*. 2003;85-A(8):1436-1445.

Hastings MK, Commean PK, Smith KE, Pilgram TK, Mueller MJ. Aligning Anatomical Structure from Spiral X-ray Computed Tomography with Plantar Pressure Data. *Clinical Biomechanics*. 2003;18(9):877-882. PMID: 14527816

Mueller MJ, Sinacore DR, **Hastings MK**, Lott DJ, Strube MJ, Johnson JE. Impact of Achilles tendon lengthening on functional limitations and perceived disability in people with a neuropathic plantar ulcer. *Diabetes Care*. 2004;27(7):1559-1564. PMID: 15220228

Hastings MK, Sinacore DR, Fielder FA, Johnson JE. Bone mineral density during total contact cast Immobilization for a patient with Neuropathic (Charcot) Arthropathy. *Physical Therapy*. 2005;85(3):249-256. PMID: 15733049

Salsich GB, Mueller MJ, **Hastings MK**, Sinacore DR, Strube MJ, Johnson JE. Effect of tendo achilles lengthening procedure on plantar flexor muscle performance in people with diabetes and a neuropathic plantar ulcer. *Physical Therapy*. 2005;85(1):34-43. PMID: 15623360

Mueller MJ, Lott DJ, **Hastings MK**, Commean PK, Smith KE, Pilgram TK. Efficacy and Mechanism of

Orthotic Devices to Unload Metatarsal Heads in People with Diabetes and a History of Plantar Ulcer. *Physical Therapy*. 2006;86(6):833-842. PMID: 16737409

Lott DJ, **Hastings MK**, Commean PK, Smith KE, and Mueller MJ. Effect of footwear and orthotic devices on stress reduction and soft tissue strain of the neuropathic foot. *Clinical Biomechanics*. 2007;22(3):352-359. PMID: 17182156

Hastings MK, Mueller MJ, Pilgram TK, Lott DJ, Commean PK, Johnson JE. Effect of metatarsal pad placement on plantar pressure in people with diabetes and peripheral neuropathy. *Ankle & Foot International*. 2007;28(1):84-88. PMID: 17257544

Prior F, Commean PK, Ju T, **Hastings MK**, Hildeboth CF, Sinacore DR. Developing a biomarker for neuropathic arthropathy in diabetic patients. 2007 IEEE/NIH Life Science Systems and Applications Workshop (LISSA 2007).

Garcia CA, Hoffman SL, **Hastings MK**, Klaesner JW, Mueller MJ. Effect of metatarsal phalangeal joint extension on plantar soft tissue stiffness and thickness. *Foot*. 2008;18:61-67. PMCID: PMC2607031

Sinacore DR, Bohnert KL, **Hastings MK**, Johnson JE. Mid foot kinetics characterize structural polymorphism in diabetic foot disease. *Clinical Biomechanics*. 2008;23(5):653-661. PMCID: PMC2517423

Hastings MK, Gelber JR, Commean PK, Prior FW, Sinacore DR. Bone mineral density of the tarsals and metatarsals with reloading. *Physical Therapy*. 2008;88(6):766-779. PMCID 2409979

Actis RL, Ventura LB, Lott DJ, Smith KE, Commean PK, **Hastings MK**, Mueller MJ. Multi-plug insole design to reduce peak plantar pressure on the diabetic foot during walking. *Med Bio Eng Comput*. 2008;46(4):363-371. PMCID: PMC2650823

Sinacore DR, **Hastings MK**, Bohnert KL, Fielder FA, Villareal DT, Blair VP, Johnson JE. Inflammatory osteolysis in diabetic neuropathic (Charcot) arthropathies of the foot. *Physical Therapy*. 2008;88(11):1399-1407. PMCID: PMC2579909

Sinacore DR, **Hastings MK**, Bohnert KL. Impact loads and plantar stresses while walking in subjects with adult-acquired, neuropathic medial column foot deformity. *Journal of Orthopaedic and Sports Physical Therapy*. 2009;39(1):A21.

Commean PK, Ju T, Liu Lu, Sinacore DR, **Hastings MK**, Mueller MJ. Tarsal and Metatarsal Bone Mineral Density Measurement using Volumetric Quantitative Computed Tomography. *Journal of Digital Imaging*. 2009;22(5):492-502. PMCID: PMC2745489

Hastings MK, Gelber JR, Isaac, EJ, Bohnert, KL, Strube MJ, Sinacore DR. Foot progression angle and medial loading in individuals with diabetes mellitus, peripheral neuropathy, and a foot ulcer. *Gait and Posture*. 2010;32:237-241. PMCID: PMC2409979

Gutekunst DJ, **Hastings MK**, Bohnert KL, Strube MJ, Sinacore DR. Removable cast walker boots yield greater forefoot off-loading than total contact casts. *Clinical Biomechanics*. 2011;26(6):649-654. PMCID: PMC3119372

Hastings MK, Sinacore DR, Mercer-Bolton N, McCormick J, Hildebolt CK, Prior FW, Johnson JE. Precision of foot alignment measures in individuals with diabetes mellitus related neuropathic charcot arthropathy. *Foot and Ankle International*. 2011;32(9):867-872. PMCID: PMC3586199

Commean PK, Tuttle LJ, **Hastings MK**, Strube MJ, Mueller MJ. Magnetic resonance imaging measurement reproducibility for calf muscle and adipose tissue volume. *J of Magnetic Resonance*

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Zheng J, Chen Y, Haacke M, **Hastings MK**, Zayed M. Contrast free MRI methods for vascular assessment in diabetic lower extremities. Society for Magnetic Resonance Angiography 30th Annual International Conference. Glasgow, Scotland 2018.

Bernhardson HJ, Jeong H-J, Brogan HV, Stumpf JL, Ellis M, **Hastings MK**. Consistency of a Metatarsophalangeal Joint Movement Pattern across Functional Tasks in People with Diabetes Mellitus. APTA Combined Sections Meeting. Denver, CO 2020.

Zellers JA, **Hastings MK**, Silbernagel KG. Inferior Tendon Mechanical Properties in Presence of Diabetes in Individuals with Achilles Tendinopathy. APTA Combined Sections Meeting. Denver, CO 2020.

Zellers JA, Eekhoff J, Walk R, Tang SY, **Hastings MK**, Lake S. Relationship of advanced glycation end-product accumulation with posterior tibialis tendon mechanics. APTA Combined Sections Meeting. Denver, CO 2020.

Jeong H-J, Mueller MJ, Stumpf JL, **Hastings MK**. Role of foot and ankle joint mobility on heel rise performance in people with diabetes. APTA Combined Sections Meeting. Denver, CO 2020.

Brogan HV, Sorensen CJ, Mueller MJ, **Hastings MK**. Decline in Physical Activity in Individuals with Diabetes Mellitus and Peripheral Neuropathy. APTA Combined Sections Meeting. Denver, CO 2020.

Zellers JA, Eekhoff JD, Walk R, **Hastings MK**, Tang SY, Lake SP. Collagen organization – but not glycation – predicts mechanical behavior in human Achilles tendon. Orthopaedic Research Society annual meeting 2021, held virtually. Poster presentation.

Zellers JA, Edalati M, Tang SY, Lake SP, Eekhoff JD, Walk R, Zheng J, **Hastings MK**. Diffusion tensor imaging reveals collagen content and organization in ex vivo human Achilles tendon. Orthopaedic Research Society annual meeting 2021. Poster presentation.

Zellers JA, Zheng J, Youmans NJ, Tang SY, Lake SP, **Hastings MK**. Tendon changes with glycation on quantitative magnetic resonance imaging. APTA Combined Sections Meeting 2021. Poster presentation.

Youmans NJ, **Hastings MK**, Mueller MJ, Commean PK, Zellers JA. Variability in rate of bone mineral density loss between bones in the diabetic foot. APTA Combined Sections Meeting 2021. Poster presentation.

Sinacore DR, Jones MA, **Hastings MK**, Cheuy VA, Ford KR. Incipient Biomarkers of Elevated risk for neuropathic foot deformity across stages of chronic kidney disease-mineral bone disorder (CKD-MBD). APTA Combined Sections Meeting 2022. Submitted

Jeong HJ, Cha B, Zellers JA, Chen L, **Hastings MK**. Midfoot and Ankle Coupling during Heel Rise in People with and without Diabetes Mellitus. APTA Combined Sections Meeting 2022. Platform presentation.

Bohnert KL, York A, Jeong HJ, Zellers JA, Chen L, **Hastings MK**. Blood glucose control worsens, sedentary time stable over 4 years and COVID. APTA Combined Sections Meeting 2022. Poster presentation.

Pruthi S, McNish R, Lohse K, Hastings MK, Zheng J, Edalati M, Zellers JA. Preliminary reproducibility analysis of diffusion tensor imaging of the Achilles tendon. American Medical Association Research Challenge Conference 2022. Poster Presentation

McNish RN, Pruthi S, Hastings MK, Mueller MJ, Zheng J, Zellers JA. Relationships of functional performance with quantitative MRI in healthy Achilles tendon. American Physical Therapy Associations Combined Sections Meeting 2023, San Diego, CA. Platform presentation.

Kaszyk, E Hastings MK. Foot intrinsic muscle deterioration in individuals with Type 2 diabetes mellitus and peripheral neuropathy. APTA Combined Sections Meeting 2023, San Diego, CA. Platform presentation.

Vaidya RS, Youmans NJ, Chen L, Jeong H-J, York A, Commean P, Hastings MJ, Zellers JA. Rate of tarsal and metatarsal bone mineral density change in adults with diabetes mellitus and peripheral neuropathy: A longitudinal study. Orthopaedic Research Society, Annual Meeting 2023, Dallas, TX. Poster presentation

Service:

Kirkwood Baptist Church Adult Sunday School Teacher	1998-present
Kirkwood Baptist Church Deacon	1999-2001
Kirkwood Baptist Church Pastor Search Committee Member	2001-2003
Kirkwood Baptist Church Playground Adhoc Committee Chairperson	2003-2005
Kirkwood Baptist Church, Hands on Kirkwood, Community-wide day of service Organization committee member and team leader	2009-present
St. Louis Gymnastics Center Parent Organization Member	2010-2015
Kirkwood Baptist Church, Youth Council Chairperson	2012-2019
Kirkwood Baptist Church, Nominating Committee Chairperson	2016-2019
Kirkwood Baptist Church, Gift ID Council Chairperson	2017-2019
Kirkwood Baptist Church, Church Leadership Council Member	2017-2021
Kirkwood Baptist Church, Church Leadership Council Chairperson	2022-2023