

Martha L. Cammarata

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EDUCATION

Northwestern University, Evanston, IL

Ph.D. in Biomedical Engineering, December 2010

Dissertation: Neuromechanical contributions to knee joint stability in the frontal plane

Advisor: Yasin Y. Dhaher, Ph.D.

Northwestern University, Evanston, IL

M.S. in Biomedical Engineering, December 2007

Thesis: The differential effects of gender, anthropometry, and prior hormonal state on frontal plane knee joint stiffness

Advisor: Yasin Y. Dhaher, Ph.D.

University of Pittsburgh, Pittsburgh, PA

B.S. in Bioengineering, April 2004

Summa Cum Laude

ACADEMIC APPOINTMENTS

Assistance Professor, Department of Kinesiology, North Central College (September 2018 – present)

Adjunct Instructor, (March 2017-June 2018)

- Instructor responsible for leading lecture sections of Human Physiology (KIN 280) and Kinesiology (KIN 317)

Adjunct Assistant Professor, Department of Physical Medicine and Rehabilitation, Northwestern University (December 2014 – present)

Assistant Professor, Department of Biology, North Park University (August 2014 – August 2015)

Visiting Assistant Professor (August 2013 – August 2014)

Adjunct Assistant Professor (August 2012 – August 2013)

- Instructor responsible for leading lecture and laboratory sessions for Introduction to Human Anatomy and Advanced Human Physiology (40-100 students per lecture section)
- Academic advisor to approximately 20 undergraduate biology major students
- Mentor undergraduate students in directed research relating to joint biomechanics and neurophysiology.

TEACHING EXPERIENCE

Teaching fellow, Northwestern University Ventures in Biology Education, (June 2011 – June 2013)

- Revamped physiology laboratory course in the introductory biological sciences curriculum to focus on student-centered, active learning techniques
- Created new laboratory experiences which challenge students to design and execute their own hypothesis-driven experiments

Co-Instructor, Mechanics of Biological Tissue, Northwestern University (Winter 2009)

- Delivered approximately one fourth of course lectures, including a new module on tissue adaptation to mechanical stimuli
- Redesigned homework assignments to demonstrate how the course material could be applied in clinical and research “real world” settings

Teaching Assistant, Biothermodynamics, Northwestern University (Winter 2006)

- Facilitated weekly discussion section meetings to review concepts and practice problem sets
- Revised course assignments and individually tutored students during weekly office hours

Graduate Mentor and Participant, Graduate Teaching Certificate Program, Northwestern University (2008-2010)

- Developed professional teaching skills during year-long program comprised of practical teaching experience and discussion and critical reflection on teaching and learning methodologies
- Mentored students completing the program, which included facilitating quarterly discussion meetings, providing feedback on teaching projects, and assessing critical reflection essays

Tutoring experience

Physics tutor, Northwestern University African American Student Affairs (2008)

- Held by appointment hours with individuals and groups of students

High school chemistry, algebra, and geometry (2007-2008)

- Weekly individual meetings tailored to the students' needs

Freshman Engineering Leadership Team, University of Pittsburgh (2002-2003)

- Tutored freshman engineers in calculus, chemistry, and physics in small group and one-on-one settings

ACADEMIC RESEARCH EXPERIENCE

Research Consultant, Department of Obstetrics and Gynecology, Loyola University Medicine, Maywood, IL (June 2015 – present)

- Perform quantitative analysis on human subjects data collected in collaboration with Colleen Fitzgerald, MD (K-23 training grant).
- Provide software and hardware support for equipment used in experimental protocols
- Collaborate on preparation of manuscripts and research presentations pertaining to the study

Research Assistant, Sensory Motor Performance Program, Rehabilitation Institute of Chicago & Northwestern University, Chicago, IL (2004-2011)

- Created and executed *in vivo* experimental protocols to investigate mechanisms of frontal plane knee joint stability, while collaborating with clinical and scientific personnel
- Performed quantitative data analysis using custom computer programs developed in Matlab software
- Communicated research findings in 5 peer-reviewed journal articles and in oral and poster presentations at 10 international scientific conferences
- Supervised and mentored undergraduate students completing internship projects in the laboratory

Research Intern, Human Engineering Research Laboratories, University of Pittsburgh, Pittsburgh, PA (Summer 2002)

- Analyzed kinetics and kinematics of upper extremity during wheelchair propulsion using Figure-Human Modeler Software
- Utilized OptoTrak system and SMART^{Wheel} for data collection

INDUSTRIAL EXPERIENCE

Consultant, Beard Group, Naperville, IL (September 2017 - present)

- Currently providing program support to a K-12 school district optimizing use of a student behavior management software. Responsibilities include: assessing district and school-wide implementation, overseeing staff training, sharing best practices, and acting as a liaison between the district and software vendor
- Supplied data analysis and processing services for a major national environmental solutions provider
- Managed vendor selection process for a K-12 school district IT department seeking a new help desk software solution.

Research and Development Intern, Orthovita, Inc., Malvern, PA (Summer 2003/ Summer 2004)

- Coordinated internal data collection and analysis for product development of novel synthetic bone void fillers and orthopedic implants
- Compiled comparative market analysis on competitive products
- Prepared data and technical reports for 510(k) submission to FDA; product was approved by FDA
- Operated scanning electron microscope and Instron mechanical testing system

HONORS

Doctoral Dissertation Award, Arthritis Foundation (2008-2010)
 Sarah Baskin Award for Excellence in Research, Rehabilitation Institute of Chicago (2008)
 Clinical Biomechanics Award, American Society of Biomechanics (2007)
 Emma W. Locke Award Nominee, University of Pittsburgh (2004)
 Biomechanics Outstanding Student Award, University of Pittsburgh (2004)
 Full Tuition Honors College Scholarship, University of Pittsburgh (2000-2004)
 Freshman Honors in Engineering Program, University of Pittsburgh (2000-2001)

PROFESSIONAL MEMBERSHIPS

American Society of Engineering Education (since 2009)
 Graduate Women in Science (since 2008)
 American Society of Biomechanics (since 2007)
 Tau Beta Pi Honor Society (inducted 2002)
 Biomedical Engineering Society (since 2002)

MANUSCRIPTS

Cammarata M.L., Dhaher Y.Y. (2012). Associations between frontal plane joint stiffness and proprioceptive acuity in knee osteoarthritis. *Arthritis Care Res (Hoboken)*. 64(5): 735-43.

Cammarata M.L., Schnitzer T.J., Dhaher Y.Y (2011). Does knee osteoarthritis differentially modulate proprioceptive acuity in the frontal and sagittal planes? *Arthritis Rheum*. 63(9):2681-9.

Cammarata M.L. and Dhaher Y.Y. (2011). Proprioceptive acuity in the sagittal and frontal planes of the knee: a preliminary study. *Eur J Appl Physiol*. 111(7):1313-20.

Cammarata M.L. and Dhaher Y.Y. (2010). Evidence of gender-specific motor templates to resist valgus loading at the knee. *Muscle and Nerve*. 41(5): 614-23.

Cammarata M.L. and Dhaher Y.Y. (2008). The differential effects of gender, anthropometry, and prior hormonal state on frontal plane knee joint stiffness. *Clin Biomech (Bristol, Avon)*. 23: 937-45.

CONFERENCE PROCEEDINGS

Cammarata M; Schnitzer T; Dhaher Y; Associations between frontal plane joint stiffness and proprioceptive acuity in knee osteoarthritis. Orthopedic Research Society Annual Meeting, January 13-16, 2011, Long Beach, CA.

Cammarata M; Dhaher Y; Proprioceptive acuity in the frontal and sagittal planes in knee osteoarthritis. American Society of Biomechanics, August 18-21, 2010, Providence, RI.

Gupta D; Cammarata M; Dhaher Y; Does hormonal contraceptive formulation influence knee joint mechanics? Orthopedic Research Society Annual Meeting, March 6-9, 2010, New Orleans, LA.

Cammarata M; Dhaher Y; Proprioception in constrained and unconstrained degrees of freedom. North American Conference on Biomechanics, August 5-9, 2008, Ann Arbor, MI.

*Cammarata M; DeMott T; Dhaher Y; Evidence of gender specific motor templates to resist a valgus perturbation at the knee. American Society of Biomechanics, August 23-25, 2007, Palo Alto, CA. (*winner Clinical Biomechanics Award)

Cammarata M; DeMott T; Dhaher Y; Frontal plane knee joint stiffness: gender and hormonal effects. American Society of Biomechanics, August 23-25, 2007, Palo Alto, CA.

Cammarata M; Moore J; Dhaher Y; Tsoumanis A; Effect of gender and oral contraceptive use on frontal plane knee joint stiffness: a pilot study. American Society of Biomechanics, September 6-9, 2006, Blacksburg, VA.

Connemara R; Loehr (Cammarata) M; Ballou E; Dhaher Y., Differential distribution of mechanoreceptors in periarticular structures of the cat knee. International Symposium on Ligaments and Tendons – VI, March 18, 2006, Chicago, IL.

AWARDED GRANTS

Proprioception and joint stability across planes in knee osteoarthritis

Principal Investigator: Martha L. Cammarata

Arthritis Foundation, Doctoral Dissertation Award

July 2008 – June 2010

REVIEW RESPONSIBILITIES

Reviewer, Ammons Scientific, Ltd

Reviewer, BioMed Central Musculoskeletal Disorders

Reviewer, BMJ Open Sport and Exercise Medicine

INVITED LECTURES AND ORAL PRESENTATIONS:

North Park University Faculty Development Day

“Advanced Uses of Microsoft Powerpoint”

April 21, 2014

ACADEMIC WORKSHOPS/LECTURES ATTENDED:

North Park University Rising Faculty Book Group – Fall 2014

“Make it Stick: The Science of Successful Learning” Brown, Roediger, McDaniel

North Park University Teaching and Learning Cooperative Workshop – Summer 2014

“Teaching Naked: How Moving Technology Out of Your College Classroom Will Improve Student Learning”

Jose Antonio Bowen

North Park University Rising Faculty Book Group – Spring 2014

“Cheating Lessons: Learning from Academic Dishonesty” James M. Lang