

# MARY M. RODGERS, PT, PhD, FAPTA, FASB, FISB

## CURRICULUM VITAE

George R. Hepburn Dynasplint Professor  
Department of Physical Therapy and Rehabilitation Science  
University of Maryland School of Medicine  
Baltimore, MD

Advisor, National Institute for  
Biomedical Imaging & Bioengineering  
National Institutes of Health  
Bethesda, MD

**Date:** October, 2016

### **Contact Information:**

100 Penn Street  
Baltimore, MD 21201-1082  
(410)706-5658 phone (410)706-6387 FAX  
email: [mroddgers@som.umaryland.edu](mailto:mroddgers@som.umaryland.edu)

6707 Democracy Blvd, suite 200  
Bethesda, MD 20892  
(310)402-1337 phone (301)480-1614  
email: [roddgersmm@mail.nih.gov](mailto:roddgersmm@mail.nih.gov)

### **EDUCATION**

8/72-5/74 Meredith College Raleigh, North Carolina  
1976 BS in Physical Therapy, University of North Carolina at Chapel Hill  
1981 MS in Medical Allied Health, University of North Carolina at Chapel Hill  
Major in Biomechanics and Education  
1985 PhD in Biomechanics, The Pennsylvania State University

### **POST GRADUATE EDUCATION and TRAINING**

9/1/09-8/31/10 American Association for the Advancement of Science (AAAS) Science and Technology Policy  
Fellowship to National Institutes of Health (NIH), National Institute for Biomedical Imaging  
and Bioengineering (NIBIB)  
4/09-12/1/09 Leadership Maryland, Class of 2009

**LICENSURE:** Licensed Physical Therapist, Maryland – active  
Licensed Physical Therapist, North Carolina, Pennsylvania, West Virginia, Ohio - inactive

### **EMPLOYMENT HISTORY**

#### **ACADEMIC APPOINTMENTS**

6/81-8/82 Associate in Physical Therapy  
Program in Physical Therapy, Duke University Medical Center, Durham, NC  
8/82-12/85 Research Assistant  
Biomechanics Laboratory, The Pennsylvania State University, University Park, PA  
7/86-7/87 Assistant Professor,  
Division of Physical Therapy, West Virginia University, Morgantown, WV  
7/86-7/87 Research Assistant Professor  
Department of Orthopedic Surgery, West Virginia University, Morgantown, WV  
1/88-91 Research Assistant Professor  
Department of Biomedical Engineering, Wright State University, Dayton, OH  
10/88-91 Research Assistant Professor

## MARY M. RODGERS, PT, PhD, FAPTA, FASB, FISB

	Dept. of Surgery (Orthopedics), Wright State University School of Medicine (WSU SOM), Wright State University, Dayton, OH
7/89-5/91	Research Assistant Professor, Dept. Rehabilitation Medicine and Restorative Care Institute for Rehabilitation Research and Medicine, WSU SOM, Wright State University, Dayton, OH
5/91-10/94	Research Associate Professor Dept. of Surgery (Orthopedics), WSU SOM, Wright State University, Dayton, OH
5/91-10/94	Clinical Associate Professor Physical Therapy Division, Ohio State University, Columbus, OH
5/91-3/93	Research Associate Professor Dept. Rehabilitation Medicine and Restorative Care, Institute for Rehabilitation Research and Medicine, WSU SOM, Wright State University, Dayton, OH
3/93-10/94	Associate Professor Dept. Rehabilitation Medicine and Restorative Care Institute for Rehabilitation Research and Medicine, WSU SOM, Wright State University, Dayton, OH
5/93-10/94	Associate faculty member, Biomedical Sciences Doctoral Program, Wright State University, Dayton, OH
11/94 – 5/99	Associate Professor (tenured 1996), Department of Physical Therapy University of Maryland School of Medicine (UMSOM), Baltimore, Maryland
11/94 - present	Special Member, Graduate Faculty, Dept. of Kinesiology University of Maryland at College Park, MD
4/97-present	Regular Member, Graduate Faculty, UMB Graduate School, Baltimore, Maryland
1/98-5/98	Acting Chair, Department of Physical Therapy, UMSOM, Baltimore, Maryland
6/98-8/13	Chair, Department of Physical Therapy & Rehabilitation Science (PTRS), UMSOM, Baltimore, Maryland
6/99 – present	Professor (endowed 5/05), Department PTRS, UMSOM, Baltimore, Maryland
9/13-6/15	Vice Chair, Department PTRS, UMSOM, Baltimore, Maryland
7/15-present	Director of External Affairs, Department PTRS, UMSOM, Baltimore, Maryland

### OTHER EMPLOYMENT

7/87-10/94	Site Director Wright State University Research Center Research Health Scientist, VAMC, Dayton, OH
11/94-present	Research Health Scientist, VA Maryland Health Care System, Baltimore, Maryland
9/09-8/10	AAAS Fellow, National Institute for Biomedical Imaging and Bioengineering (NIBIB), National Institutes of Health (NIH)
9/10-present	Senior Advisor, NIBIB, NIH (20% FTE 9/10-9/13; 50% FTE 9/13-9/16, 20% FTE 10/16-present)

### PROFESSIONAL SOCIETY MEMBERSHIPS

1976-present	American Physical Therapy Association (APTA)
1980-2000	Orthopedic Section
1980-present	Research Section
1994-present	Maryland Chapter of APTA
1998-present	Education Section and Academic Administrators Special Interest Group
1984-present	American Society of Biomechanics (ASB)
1985-94	Canadian Society of Biomechanics (CSB)
1985-present	International Society of Biomechanics (ISB)

## MARY M. RODGERS, PT, PhD, FAPTA, FASB, FISB

1985-2000	International Society of Electrokinesiology (ISEK)
1985-94	American College of Sports Medicine (ACSM)
1986-2000	Orthopedic Research Society (ORS)
1989-1994	Ohio Physical Therapy Association
1990-1994	Association for the Advancement of Rehabilitation Technology (RESNA)
1994-2007	European Society of Biomechanics
2002-present	Phi Kappa Phi
2003-present	American Congress of Rehabilitation Medicine (ACRM)

### HONORS & AWARDS

5/81	Mary Clyde Singleton Award for outstanding graduate student, Department of Physical Therapy, University of North Carolina
9/81	Health Related Professions Winner in Student competition of Fifth International Conference on Human Functioning
4/87-3/88	Outstanding Performance Award - VA Medical Center, Dayton, OH
4/88-3/89	Outstanding Performance Award - VA Medical Center, Dayton, OH
4/89-3/90	Outstanding Performance Award - VA Medical Center, Dayton, OH
4/90-3/91	Outstanding Performance Award - VA Medical Center, Dayton, OH
4/92-3/93	Outstanding Performance Award - VA Medical Center, Dayton, OH
9/93	Performance Award VA Medical Center, Dayton, OH
8/94	Special Contribution Award - VA Medical Center, Dayton, OH
5/01	Department of Physical Therapy, UMB Student Research Award, named in my honor by the dept. research committee, "Mary M. Rodgers Student Research Award"
10/02	University of Maryland Chapter of the National Honor Society of Phi Kappa Phi
5/05	George R. Hepburn Dynasplint Endowed Professorship
3/09-12/09	Leadership Maryland, Class of 2009
5/09	Catherine Worthingham Fellow, American Physical Therapy Association
9/09-8/10	American Association for the Advancement of Science (AAAS) Fellowship to NIH/NIBIB
8/12	American Society of Biomechanics Fellow
7/15	International Society of Biomechanics Fellow
2/16	H.P. Maley Award, Research Section, American Physical Therapy Association

### PEER REVIEW WORK

#### Journal Referee:

1985-1994	<i>Medicine and Science in Sports and Exercise</i>
1987-1998	<i>Journal of Orthopaedic and Sports Physical Therapy</i>
1990-2000	<i>Physical Therapy Journal</i>
1991-2001	<i>Journal of Rehabilitation Research and Development</i>
1993-2001	<i>Clinical Kinesiology</i>
1993-2005	<i>Journal of Electromyography and Kinesiology</i>
1994-1999	<i>Journal of Applied Biomechanics</i>
1994	<i>Journal of Gerontology: Medical Sciences</i>
1998-2004	<i>Journal of Biomechanics</i>
1998-present	<i>Archives of Physical Medicine and Rehabilitation</i>
2003-2005	<i>Osteoarthritis and Cartilage</i>

#### Editorial Board Member:

1987-1998	<i>Journal of Orthopaedic and Sports Physical Therapy</i>
1994-1999	<i>Journal of Applied Biomechanics</i>
2003-present	<i>Archives of Physical Medicine and Rehabilitation</i>

## MARY M. RODGERS, PT, PhD, FAPTA, FASB, FISB

### Grant Merit Reviewer:

1989-94	British Columbia Health Research Foundation
1990-2006	Research and Development Service and Health Services Research and Development Service of the U.S. Department of Veterans Affairs
1991-94	National Institutes of Health (NIH) Special Study Section: Orthopedics and Rehabilitation Small Business Innovation Research (SBIR)
1991-1993	Spinal Cord Research Foundation of the Paralyzed Veterans of America
1995	National Institute of Child Health and Human Development (NICHD) National Center for Medical Rehabilitation Research (NCMRR)
1997	National Institute on Disability and Rehabilitation Research (NIDRR)
1998	NIH: Clinical Sciences Special Emphasis Panel for SBIR
2001-2003	Scientific Review Committee, Foundation for Physical Therapy
2002	NICHD Medical Rehabilitation Research Subcommittee
2003	NIH: NICHD Special Emphasis Panel: Biomechanical Modeling of Movement
2004	NIH: Special Emphasis Panel: Musculoskeletal Rehabilitation Sciences
2005	NIH: NCCR Special Emphasis Panel: COBRE
2006-present	University of Maryland Claude D. Pepper Older Americans Independence Center

### MAJOR CONSULTANTSHIPS

1990	Doctoral Planning Session for Washington University School of Medicine Program in Physical Therapy, St. Louis, Missouri
1994	Consultant for Andrews University - Development of new entry level masters Physical Therapy Program in Dayton, OH.
2000-2004	Scientific Advisory Board, Shriners Hospital for Children, Philadelphia, PA
2000-2004	Georgetown University Consortium for Assistive Technology
9/1-4/04	Physical Therapy Department Review, University of Texas Medical Branch, Galveston, TX
10/07-present	External Advisory Committee member for K12 "Rehabilitation Research Career Development Program", funded by NCMRR for \$4.98 million, through UTMB and UF.
1/09	Texas Tech University Health Science Center PhD program review for Texas Higher Education Coordinating Board
5/10-5/11	World Technology Evaluation Center, Inc. (WTEC) Panel on Disability Research
9/12	Evaluation of the bachelor's and master's programme in Human Movement Sciences at VU University Amsterdam and at the University of Groningen, Netherlands
2/14-present	Data and Safety Monitoring Board member, "Vascularized Composite Allotransplantation for Treatment of Extremity Amputations", Paolo Bonato, PI.

### INSTITUTIONAL SERVICE

#### **Departmental**

6/95-8/95	Chair, Technician Search Committee
6/95-1/98	Chair, Research Committee
6/95-1/98	Chair, PhD Sub-Committee
6/95-1/98	Member, Executive Committee
9/96-9/97	Co-chair, Strategic Planning Committee
1/98-present	Executive Advisory Committee/Leadership Team
6/98-12/02	President, Physical Therapy Associates, Inc. (faculty practice)

#### **School of Medicine**

10/93-10/94	Research Committee, Wright State University
10/94-8/13	School of Medicine Council, UMB
6/98-12/01	Board of Trustees, University Physicians Inc.

## MARY M. RODGERS, PT, PhD, FAPTA, FASB, FISB

6/98-9/13	SOM Executive Committee
10/98-5/99	Search Committee, Associate Dean for Research and Graduate Studies
1/99-5/99	LCME subcommittee on research
1/00-7/00	Strategic Planning Committee
12/00-11/01	Search Committee for Chair of Orthopedics Department
7/01-7/04	Appointments, Promotion and Tenure Committee
5/02-4/03	Search Committee for Chair of Physiology Department
12/03-12/07	SOM Bicentennial Committee
8-10/11	Search Committee for Director of Graduate Programs in Life Sciences (GPILS)
5-7/13	Review Committee for Orthopedic Department Chair
9/13-present	Finance and Philanthropy Resource Advisory Group
2/13-2/14	Application reviewer for Health Professions - Student Training in Aging Research (HP-STAR) Program

### University

5/80-5/81	Director Search Committee - Division of Physical Therapy, University of North Carolina
1986	Conference organizer: Current Concepts in the Biomechanics, Evaluation, and Treatment of Locomotor Dysfunction and Running Injuries. West Virginia University School of Medicine
1986-87	Physical Therapy Graduate Program Committee - West Virginia University
1986-87	Van Liere Memorial Research Convocation Committee - West Virginia University
5/89-5/91	Faculty advisor for Wright State University Society of Women Engineers
9/90-10/94	University Disability Research Group, Wright State University.
8/93-6/94	Treasurer, American Association of University
9/98-6/99	Faculty Advisory Committee to Maryland Higher Education Commission representing UMB Faculty Senate
4/01-present	University of Maryland Center for Research on Aging Leadership Group
4/01-present	Internal Advisory Committee for the BIRCSWH, Women's Health Research Group, UMB
7/01-present	Geriatrics Research Education Clinical Center (GRECC) External Advisory Committee
2002-2010	Judge for Annual Aging and Women's Health Research Poster Day
9/06-present	Research Mentor for Junior Faculty, University of Maryland Claude D. Pepper Older Americans Independence Center
2/12-present	Interprofessional Education committee

### LOCAL, NATIONAL, INTERNATIONAL SERVICE

#### Professional/Scientific – local and state

1980-82	Legislative Committee - North Carolina Physical Therapy Association
5/91-5/94	Consortium for Applied Rehabilitation Technology (CART), Dayton, OH
4/98-9/01	Research and Development Committee, VAMC Baltimore
11/00-11/01	Nominating Committee Chair, Maryland Chapter of APTA
1/98-6/02	UMB Liaison to Maryland Chapter of APTA Executive Council
2002	Maryland Board of Physical Therapy Examiners representative to the Maryland Board of Education Health Care Career Path Initiative
11/02-11/03	Kendall committee - Maryland Chapter of APTA
1/09-6/09	Maryland Chapter Alternate Delegate to the APTA House of Delegates

#### Professional/Scientific – national

12/80	Contributor to American Physical Therapy Association- Professional Examination Service (licensure examination program)
8/86-8/93	Member, Education Committee - American Society of Biomechanics (ASB)

## MARY M. RODGERS, PT, PhD, FAPTA, FASB, FISB

- 1988-89 American Society of Biomechanics (ASB) Nominating Committee Member  
8/89-8/93 ASB Education Committee Chair and Executive Board Member  
1989-91 Strategic Planning Committee, Research Section, APTA  
1990-94 American College of Sports Medicine Abstract Reviewer for annual conference - biomechanics  
1/5/90 Contributor to the National Board of Medical Examiners Comprehensive Examination (Musculoskeletal/Skin NBME Committee)  
1995 Chair, Research Conference, Research Section, APTA. Title: Multisegmental Motor Control: Interface of Biomechanical, Neural, and Behavioral Approaches.  
1995-1997 ASB Program Chair and Executive Board Member  
9/96 Invited Participant, "Gait Analysis in Rehabilitation Medicine." Sponsored by National Center for Medical Rehabilitation Research, NICHD, NIH  
6/98-6/00 Member and Chair (99-00), Nominating committee, Research Section APTA  
7/16/00 Chair of breakout session for Association of American Medical Colleges Professional Development Seminar for Senior Women in Medicine.  
8/01-8/02 Representative at large for funding, Education Section APTA  
6/05 Panel chair, "Workshop on Capacity Building for Research in Rehabilitation Science Professions" sponsored by the Interagency Committee on Disability Research Interagency Subcommittee on Medical Rehabilitation  
7/05-6/08 Chair, Advisory Panel on Research, Board of Directors, APTA  
6/06-6/08 Chair, Academic Administrators Special Interest Group, APTA Education Section  
8/06-present Research mentor for American Society of Biomechanics  
9/06-present Research Mentor for Junior Faculty, Claude D. Pepper Older Americans Independence Centers Annual Meetings  
8/07-8/09 Steering Committee on Physical Therapy and Society Summit for 2009  
5/09-present APTA Fellow Initiatives  
8/10-2/13 Technopalooza Steering Committee, Combined Sections Meetings, APTA  
2011-present Applicant Reviewer for the American Association for the Advancement of Science (AAAS) Fellowship program  
12/11-present External Advisory Board member, Rehabilitation Research Career Development (RRCD) K12 Program (UTMB, USC, UF), sponsored by NCMRR/NICHD/NIH  
1/11-present Faculty reviewer and mentor, *Training in Grantsmanship for Rehabilitation Research (ERRIS/TIGRR)* grant writing workshop, sponsored by NCMRR/NICHD/NIH  
12/11-present External Advisory Board member, Training in Rehabilitation Efficacy and Efficiency Trials (TREET) T32 Program.  
10/16/15 Organizing committee for *Wireless Health 2015 Conference* at NIH and session chair: Technical Session #4: Hospitals and Remote Health Care.  
11/9-10/15 Program Chair, *Strategic Conference on Point of Care Technologies for Precision Medicine*. Sponsored by IEEE and NIH (<http://hipt.embs.org/2015/>)  
1/16-present Chair, Research-Intensive Physical Therapy Programs Consortium (RIPPT), American Council of Academic Physical Therapy (ACAPT)  
9/16 Program Committee, 2nd IET International Conference on Technologies for Active and Assisted Living (TechAAL 2016)  
10/16 Organizing committee for *Wireless Health 2015 Conference* at NIH and session chair  
2016 Program Committee, *Strategic Conference on Point of Care Technologies for Precision Medicine*. Sponsored by IEEE and NIH (<http://hipt.embs.org/2016/>)

### Professional/Scientific – international

- 3/90-8/91 Scientific Committee, Int. Symposium on 3-D Analysis of Human Movement, Montreal, Canada  
9/97-8/07 International Society of Biomechanics, Executive Council Member  
President-elect (7/01-7/03), President (7/03-7/05), Past President (7/05-7/07)  
2/02 Rehabilitation Engineering Society of North America (RESNA) Conference abstract reviewer  
8/06 World Congress of Biomechanics, Munich, Germany, ISB liaison and Session organizer  
"Rehabilitation Biomechanics"

## MARY M. RODGERS, PT, PhD, FAPTA, FASB, FISB

- 8/06-present Research mentor for International Society of Biomechanics
- 7/07 Session Chair "Wheelchair" International Society of Biomechanics, Taipei, Taiwan
- 1/10-12/10 Invited panel member: International Assessment of R&D in Technologies for Persons with Disabilities. National Science Foundation/World Technology Evaluation Center, Inc.
- 2011-2015 Advisory Board for the Arthritis Research UK Biomechanics & Bioengineering Centre, Cardiff University, Wales, UK
- 2015 Session organizer for "Point of Care Technologies" for the 37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society in Milan, Italy

### Community Service

- 9/93-8/94 Board of Directors, Yellow Springs Community Childrens Center, Yellow Springs, OH
- 1993-95 Program Committee, UU, Yellow Springs, Ohio
- 9/98-5/05 Parent Volunteer – Guilford Elementary School
- 1999-present American Red Cross "Champion for Life" Donor
- 2000-present Education Volunteer – Unitarian Universalist Congregation of Columbia, MD
- 9/00-3/06 Board of Directors, St. Matthew Housing Development, Columbia, MD
- 2/02 Brain's Rule Projects for 6<sup>th</sup> and 7<sup>th</sup> graders at the Science Center, Baltimore, MD
- 9/20/06 Panel member, Sixth Annual Science Career Workshop, Morgan State University, Baltimore, MD
- 9/21/06 Speaker for Teachers' Thursdays – Maryland Science Center, Baltimore, MD
- 7/1/08-10 Board of Trustees, Unitarian Universalist Congregation of Columbia, MD

### TEACHING SERVICE

- 1980 PHYT 291 - Kinesiology, Fall 3 credit lecture course for 15 graduate students  
Masters Program in Medical Allied Health, University of North Carolina at Chapel Hill
- 1982 PT 320 Evaluation and Therapeutic Procedures I - Spring  
Taught 3 credit lecture/lab course for 24 graduate PT students  
Masters Program in Physical Therapy, Duke University, Durham, NC
- 1986-87 Taught in the Program in Physical Therapy, West Virginia University Morgantown, West Virginia,  
28 students per class. PT 110 - Functional Anatomy, lecture/lab course; Spring, 1987  
PT 275 - Professional Literature and Research, Fall, 1986  
Lecture course and also coordinated all undergraduate student research
- 1987-90 Supervised following independent study student projects, Wright State University:  
"Fatigue Measurements of Paralyzed Muscle after a bout of Electrically Stimulated Exercise"  
(1987)  
BME 499 "Design and Construction of Calibration System for an Instrumented Wheelchair"  
(1988)  
BME 499 "Response of Muscle Spasticity in Able Bodies and Cerebral Palsied Subjects to a  
Change in Temperature" (1989)  
BME 499 "Bilateral CPM Design" (1989-90)  
BME 499 "Comparison of Postural Sway Parameters in Cerebral Palsy and Control Subjects"  
(1990)
- 1988-1994 Orthopaedic Basic Science Lecture Series for Wright State University Orthopaedic Residents  
(average of 15 residents per class). Eight lectures on the following topics: Dynamic, Kinetics,  
Normal Gait, Pathological Gait, and Gait Analysis
- 1989-90 Taught courses in Biomedical Sciences Ph.D. Program, Wright State University including:  
BMS 995 - Non-Dissertation Research (3 graduate students)  
BMS 996 - Laboratory Rotation (3 graduate students)  
BMS 999 - Dissertation Research (1 graduate student)
- 1995 PTAB 588 - Independent Study - Research - 6/95-12/95  
Summer and fall course, 3 students, 2 credit hours, Department of Physical Therapy, UMSOM
- 1995-2001 PTAB 571 - Pathokinesiology - summer or fall semester

## MARY M. RODGERS, PT, PhD, FAPTA, FASB, FISB

- 1995-8, 1999-present (partial)  
68 third year students, 4 hr lecture/wk, two 3-hr labs/wk  
Department of Physical Therapy, UMSOM
- 1995-2001 PTAB 411 - Biomechanics - fall semester – 1995-98 & 1999-present (partial)  
Fall course, 65 first year students, 2 hr lecture/wk, two 3-hr labs/wk  
Department of Physical Therapy, UMSOM
- 1998-2001 Problem-Based Learning (PBL) facilitator for 1<sup>st</sup> and 2<sup>nd</sup> year Medical Students, UMSOM.
- 2002-04 Geriatrics coordination, PBL coordination, Clinical presentations (MPT and DPT students)
- 2002-05 MPT Seminar – 3<sup>rd</sup> yr MPT students (8)
- 2003-06 PBL Coordinator and facilitator for DPT curriculum (basic science 2 and medical issues 1 blocks)  
6-9 first year DPT students, mock interviews (PI3), competency testing (2<sup>nd</sup> year DPT students), Dept. of Physical Therapy & Rehabilitation Science (PTRS), UMSOM
- 2003-present Evidence Based Practice Seminar coordinator and facilitator (Medical Issues, Neuromuscular and Musculoskeletal blocks), Research lecture – Medical Issues and Basic Sciences 2 blocks, PTRS, UMSOM
- 2003-16 CIPP907, RCR. Responsible Conduct of Research (12 graduate students/post-doctoral fellows per group)
- 2016 Block leader for Professional Issues 2 and 3 (1<sup>st</sup> and 2<sup>nd</sup> year DPT students)

### GRADUATE STUDENT AND POST-DOCTORAL ADVISOR

- 1992 Leugers, Rebecca C. "Effects of Hand Position on Trunk Forward Inclination During Rising to Standing" (MS in Physical Therapy, Ohio State University).
- 1992 Kobayashi, Masuo. "Studies in Wheelchair Propulsion" (Post-doctoral work in Dept. Rehabilitation Medicine and Restorative Care, Institute for Rehabilitation Research and Medicine, WSU SOM)
- 1993 Williams, Robert "Examination of various factors as objective indices of fatigue in electrically induced isometric exercise of paralyzed quadriceps muscles" (MS in Anatomy, WSU)
- 1993 Lewis, Colleen "Spasticity measurement in spinal cord injured individuals" (MS in Anatomy, WSU)
- 1997 Ranniger, Claudia "Quantification of Hand Performance during Simulated Extravehicular Activity" (PhD in Dept. of Aerospace Engineering, University of Maryland, College Park)
- 1997 Russell, Pamela "Studies in Wheelchair Propulsion" (Post-doctoral work in Dept. of Physical Therapy, UMB)
- 1998 Feliciano, Debbie "Functional Outcome Tool for Wheelchair Dependent Individuals" (MPT in Dept. of Physical Therapy, UMB)
- 1998 Bechtel, Roy "Biomechanical and Histological Investigation of the Axial Interosseous Ligament of the Human Sacroiliac Joint" (PhD in Kinesiology/ Biomechanics, University of Maryland, College Park)
- 1999 Kalappa, Neeta "Muscular Strength and Endurance in Females with Systemic Lupus Erythematosus" (MPT in Dept. of Physical Therapy, UMB)
- 2002 Jackson, Kurt "Balance Training Intervention for Individuals with Multiple Sclerosis" (PhD in Rehabilitation Science, The Union Institute, Cincinnati, OH)
- 2002 Cade, Todd "Highly Active Antiretroviral Therapy and Decreased Aerobic Capacity in HIV". (PhD in Physical Rehabilitation Science (PRS), UMB)
- 2003 Finley, Margaret "Scapular Function During Selected Activities of Daily Living" (PhD in PRS, UMB)
- 2003 Lovering, Richard "Eccentric Contraction-induced Skeletal Muscle Injury and its Consequences for the Sarcolemma and the Associated Cytoskeleton. (PhD in PRS, UMB)
- 2003 de Groot, Sonja "Changes in propulsion technique during a natural hand rim wheelchair learning process" (ISB International Travel Grant, Amsterdam, NL)
- 2004-5 Gracyalny, Stephanie (pre doctoral trainee on T32, advisory role as grant PI)
- 2006 Rasch, Beth "Health of Community Dwelling Adults with Mobility Limitations in the United States: Prevalent and Incident Health Conditions and their Consequences." (PhD in PRS, UMB)



## MARY M. RODGERS, PT, PhD, FAPTA, FASB, FISB

- 2006 Scott, Wayne "Skeletal muscle performance, aerobic capacity and function in middle-aged HIV positive men."  
(post doctoral trainee on T32 training grant, advisory role as grant PI)
- 2006-7 Lin, Chien Ju (pre doctoral visiting student for one year, funded through Taiwan government)
- 2006-7 Judkins, Tim (post doctoral fellow on T32 training grant, advisory role as grant PI)
- 2006-8 Tseng, Shih-Chiao "Impaired Reactive Postural Control in the Elderly during Voluntary Stepping"  
(Dissertation Committee member, PhD in PRS, UMB)
- 2008 Mizelle, Chris "Stroke-Injured Cortical Activity and Adaptation in Lower Extremity Movement"  
(T32 advisor, PhD in PRS, UMB)
- 2007-8 Jones-Lush, Lauren (post-doctoral trainee on T32 training grant, advisory role as grant PI)
- 2007-8 Beeler, Jerome (Academic advisor, PhD student in PRS, UMB)
- 2007-9 Khanna, Ira (T32 advisor, PhD candidate in PRS, UMB)
- 2008-10 Wei Lui "Biomechanical Analysis of Arm Reaching in Individual with Stroke and Non-Disabled Adults" (Dissertation Committee member, PhD in PRS, UMB)
- 2008-10 Priya Viswanathan "Control of Sequential Actions: Predictive Control and Asymmetry" (Dissertation Committee member, PhD in PRS, UMB)
- 2007-10 Scherer, Matthew "Characterizing High Velocity Angular Vestibulo-ocular Reflex Function in Service Members Post Blast Exposure" (Academic advisor, PhD in PRS, UMB)
- 2009-12 Charness, Ann "Correlations of Balance and Gait Measures with the UPDRS and with Each Other"  
(PhD Dissertation Committee member, University of Texas Graduate School of Biomedical Sciences at Galveston)
- 2010-13 Roche, Renuka "Auditory Motor Coordination in Children with and without Developmental Coordination Disorder" (Dissertation Committee member, PhD in PRS, UMB)
- 2011-present Ozell Saunders (Academic advisor, Dissertation Committee Member, PhD in PRS, UMB)

### **GRANT SUPPORT**

#### **Active Grants**

- 5/03-4/18 T32-AG00262 "Research Training in the Epidemiology of Aging" NIA  
PI: Jay Magaziner; Clinical Research Faculty/Mentor: Mary Rodgers (1%)
- 9/06-9/21 P30 AG028747-01 "Claude D. Pepper Older Americans Independence Center"  
National Institute on Aging (NIA) PI: A. Goldberg/J. Magaziner;  
Pilot Exploratory Studies Core Director: Mary Rodgers (10%)
- 10/16-9/21 90AR5028 "University of Maryland Advanced Neuromotor Rehabilitation Research Training"  
National Institute on Disability, Independent Living and Rehabilitation Research,  
Administration for Community Living  
PI: Mark Rogers Executive Committee, Primary Mentor: Mary Rodgers

#### **Completed Grants**

- 1987-88 "Analysis and Characterization of Infant Creeping Motion Dynamics". West Virginia  
University Senate Research Committee  
Co-PI: Mary Rodgers Total Cost: \$5,000
- 1987-88 "Heelstrike Characteristics of Early Stage Osteoarthritis Patients".  
Biomedical Research Grant, West Virginia University  
Co-PI: Mary Rodgers Total Cost: \$5,000
- 1987-91 "Evaluation of FES techniques for exercise."  
VA Medical Center, Dayton, OH; VA Rehabilitation R&D Merit Review;  
PI: RM Glaser; Co-I: Mary Rodgers Total Cost: \$1.4 million
- 1988-91 "FNS Effects Upon Venous Pooling in Mobility-Impaired and Geriatric Patients."  
VA Medical Center, Dayton, OH; VA Rehabilitation R&D Merit Review;  
PI: R.M.Glaser; Co-I: Mary Rodgers Total Cost: \$460,000
- 1989-90 "Biomechanical and Physiological Analysis of Wheelchair Locomotion." College of  
Education and Human Service Research Fund, Wright State University

**MARY M. RODGERS, PT, PhD, FAPTA, FASB, FISB**

	Co-PI: Mary Rodgers	Total Cost: \$ 2,600
1/90-1/91	"Intraoperative evaluation of forearm muscle performance and tendon tension", Research Challenge Program; Wright State University	
	Co-PI: Mary Rodgers	Total Cost: \$20,000;
1/90-1/93	"Improving Exercise Performance of Quadriplegics". VA Medical Center, Dayton, OH; VA Rehabilitation R&D Merit Review; PI: SF Fioni; Co-I: Mary Rodgers	Total Cost: \$291,000
1/91-6/94	"Gait Assessment of Individuals with Cerebral Palsy" Children's Medical Center	
	Co-PI: Mary Rodgers	Total Cost: \$ 93,709
2/91-2/92	"Prevention of glenohumeral shoulder subluxation in stroke patients using functional neuromuscular stimulation: A pilot study". VA Rehabilitation R&D Merit Review,	
	Co-PI: Mary Rodgers	Total Cost: \$25,026
4/91-4/92	"SCI Responses to Wheelchair Propulsion During Fatigue" VA Rehabilitation R&D Merit Review	
	PI: Mary Rodgers	Total Cost: \$ 24,900
1991-94	"Evaluation and optimization of FES techniques for exercise." VA Medical Center, Dayton, OH; VA Rehabilitation R&D Merit Review	
	PI: RM Glaser, Co-I: Mary Rodgers	Total Cost: \$1.05 million
1/93 - 1/95	"Exercise Testing and Training of Multiple Sclerosis Patients" VA Rehabilitation R & D Merit Review	
	PI: J.A. Ponichtera, Co-I: Mary Rodgers	Total Cost: \$ 249,800
1/93 -1/94	"Bone Density Changes in Stroke Patients". Research Challenge Program; Wright State University	
	PI: Mary Rodgers	Total Cost: \$5,000
10/91- 10/95	"Bone Density Changes in Spinal-cord Injured Patients NIH	
	PI: T.N. Hangartner (Wright State University)	
	Co-I: Mary Rodgers	Total Cost: \$ 800,000
8/95 - 8/96	"Multi segmental Motor Control: Interface of Biomechanical, Neural and Behavioral Approaches" NIH/NICHHD - Conference Grant	
	PI: Mary Rodgers	Total cost: \$ 8,000
7/93 - 9/97	"Wheelchair propulsion Performance in Young, Middle-aged and Elderly Adults" VA Rehabilitation R & D Merit Review	
	PI: Mary Rodgers	Total Cost: \$313,900
1/95 - 1/98	"Exercise Testing and Training of Multiple Sclerosis Patients" VA Rehabilitation R & D Merit Review, P.I.: J.A. Ponichtera (Andrews University)	
	Co-I: Mary Rodgers	Total Cost: \$478,200
1/98 - 6/01	"Physical Performance Measures for Young, Middle-Aged and Elderly Manual Wheelchair Users", VA Rehabilitation R & D Merit Review Board Project (#B2168RA)	
	PI: Mary Rodgers	Total Cost: \$413,100
7/98-10/01	"Effect of Aerobic Exercise on Gait and Functional Performance in Hemiparetic Stroke" VA Rehabilitation R & D Merit Review Board Project	
	PI: Ken Silver, Co-I: Mary Rodgers	Total Cost: 393,250
9/01-8/06	P50 AG12583-06A1 "Claude D. Pepper Older Americans Independence Center" (NIA)	
	PI: Andrew Goldberg; senior investigator and Core PI: Mary Rodgers (10%)	Total Cost: 8,115,842
8/02-8/03	02430743 Rodgers (contract PI) Western MD AHEC	
	"Rural Interdisciplinary Health Promotion Project"	Total cost: \$40,000
5/03-4/08	T32 HD041899-01A1 NIH/NCMRR Rodgers (PI) (20%)	
	Advance Rehabilitation Research Training Project	Total cost: \$758,762
8/04-7/07	PA-03-085 SBIR Phase II Continuation Grant NIH/NCMRR Meginniss (PI)	
	"Two-Speed Manual Wheelchair Wheel"	
	Role: PI subcontract (10%)	Total Cost: \$898,856
9/05-6/06	02430744 Rodgers (contract PI) Western MD AHEC	

## MARY M. RODGERS, PT, PhD, FAPTA, FASB, FISB

- 8/12-9/13 “Rural Interdisciplinary Health Promotion Project” Total cost: \$40,000  
“Physical Therapy Meta-Analysis: The Effect of Joint Contracture Management with Assistive Devices on Range of Motion”; Dynasplint Systems, Inc.,  
Rodgers (PI) Total Cost: \$30,100
- 10/05-8/14 B3688R “Center of Excellence: Task-Oriented Exercise and Robotics in Neurological Disease”  
Veterans Administration RR&D  
PI: R. Macko; Co-PI for Human Performance & Neuroplasticity Core: Mary Rodgers (5%)
- 10/10-9/15 H133P100014 “University of Maryland Advanced Neuromotor Rehabilitation Research Training”  
National Institute on Disability and Rehabilitation Research, U.S. Department of Education  
Rodgers (PI) Role: Executive Committee, Primary Mentor  
Total Costs: \$750,000

### COPYRIGHT

- 2001 Stanley RK, Stafford DJ, Rasch EK, **Rodgers MM**: “Functional Assessment Measure for Manual Wheelchair Users”

### PUBLICATIONS

#### Journal articles (peer-reviewed)

1. **Rodgers MM**, LeVeau B: Effectiveness of foot orthoses used to modify pronation in runners. *Journal of Orthopedic and Sport Physical Therapy*, Vol. 4, No. 2: pp. 86-90, 1982.
2. **Rodgers MM**, Cavanagh PR: A compendium of definitions and concepts in biomechanics. *Physical Therapy*, Vol. 64, No. 12, pp. 1886-1902, 1984.
3. Cavanagh PR, Andrew G, Kram R, **Rodgers MM**, Sanderson D, Hennig E: An approach to biomechanical profiling of elite distance runners. *International Journal of Sport Biomechanics*, 1(1): 36-62, 1985.
4. Cavanagh PR, Hennig E, **Rodgers MM**, Sanderson D: The measurement of pressure distribution on the plantar surface of diabetic feet. *Biomechanical Measurement in Orthopedic Practice*, Oxford University Press, England, pp. 159-166, 1985.
5. Radin E, Whittle M, Yang KH, Jefferson, **Rodgers MM**, Kish V, O'Conner: The heelstrike transient, its relationship with the angular velocity of the shank, and the effects of quadriceps paralysis. *Advances in Bioengineering*, pp.121-123, 1986.
6. Cavanagh PR, **Rodgers MM**, and Iiboshi A: Pressure distribution under symptom-free feet during barefoot standing. *Foot and Ankle*, 7(5): 262-276, 1987.
7. Cavanagh PR, **Rodgers MM**: The arch index: A useful measure from the footprint. *Journal of Biomechanics*, 20(5):547-551, 1987.
8. **Rodgers MM**, Cavanagh PR, and Sanders L: Plantar pressure distribution of diabetic feet. *Biomechanics X-A*, Human Kinetics Pub., Champaign, IL, pp. 343-347, 1987.
9. Mucino VH, **Rodgers MM**, Harris MB, Yang KH: Three dimensional characterization of infant crawling kinematics. *Biomechanics of Normal and Prosthetic Gait*, BED Vol.4, DSC-Vol.7, pp. 101-107, 1988.
10. **Rodgers MM**: Dynamic biomechanics of the foot and ankle. *Physical Therapy* 68:1822-1830, 1988.
11. **Rodgers MM**, Cavanagh PR: Pressure distribution in Morton's foot structure. *Medicine and Science in Sports and Exercise* 21(1), 1989.
12. Hooker SP, Figoni SF, Glaser RM, **Rodgers MM**, et al: Physiological responses to prolonged electrically stimulated leg-cycle exercise in the spinal cord injury. *Archives Physical Medicine and Rehabilitation* 11:863-869, 1990.
13. Figoni SF, **Rodgers MM**, et al: Physiologic responses of paraplegics and quadriplegics to passive and active leg cycle ergometry. *Journal of American Paraplegia Society* 13(3):33-39, 1990.
14. **Rodgers MM**, Glaser RM, Figoni SF, Hooker SP, Ezenwa BN, Collins SR, Mathews T, Suryaprasad AG, Gupta SC: Musculoskeletal responses of spinal cord injured individuals to functional neuromuscular stimulation-induced knee extension exercise training. *J Rehabil Res Dev* 28(4):19-26, 1991.

## MARY M. RODGERS, PT, PhD, FAPTA, FASB, FISB

15. Figoni SF, Glaser RM, **Rodgers MM**, Hooker SP, Faghri PD, Ezenwa BN, Mathews T, Suryaprasad AG, Gupta SC: Acute physiological responses of spinal cord injured individuals to functional neuromuscular stimulation-induced knee extension exercise. *J Rehabil Res Dev* 28(4):9-18, 1991.
16. Ezenwa BN, Glaser RM, Couch W, Figoni SF, **Rodgers MM**, et al: Control of functional neuromuscular stimulation-induced knee extension exercise for spinal cord injured subjects. *J Rehabil Res Dev* 28(4):1-8, 1991.
17. **Rodgers MM**, Kuntzman AJ, Glaser RM, Shively RA, Ezenwa BN: Characteristics of functional neuromuscular stimulation-induced spasticity in spinal cord injured subjects. In PA Anderson, DJ Hobart & JV Danoff, eds.: *Electromyographical Kinesiology*. Elsevier Science Publishers BV, 1991, pp.439-442.
18. Ponichtera JA, **Rodgers MM**, Glaser RM, et al: Comparison of concentric and eccentric isokinetic lower extremity strength between multiple sclerosis and able-bodied individuals. *Journal of Orthopedic and Sports Physical Therapy* 16:114-122, 1992.
19. Hooker SP, Figoni SF, **Rodgers MM**, Glaser RM, et al.: Metabolic and hemodynamic responses to concurrent submaximal voluntary arm crank and electrical stimulation leg cycle exercise in quadriplegics. *J Rehabil Res Dev* 29(3):1-11, 1992.
20. Hooker SP, Glaser RM, Figoni SF, **Rodgers MM**, Mathews T, Suryaprasad AG, Gupta SC: Physiologic effects of electrical stimulation leg cycle exercise training in spinal cord injured persons. *Archives Physical Medicine and Rehabilitation* 73:470-476,1992.
21. Schutte LM, **Rodgers MM**, Zajac FE, Glaser RM: Improving the efficacy of electrical stimulation-induced leg cycle ergometry: An analysis based on a dynamic musculoskeletal model. *IEEE Transactions on Rehabilitation Engineering* 1:109-125, 1993.
22. Hangartner TN, **Rodgers MM**, Glaser RM, Barre PS: Tibial bone density loss in spinal-cord injured patients: Effects of FES exercise. *J Rehabil Res Dev* 31(1):50-61, 1994.
23. **Rodgers MM**, Gayle GW, Figoni SF, Kobayashi M, Glaser RM. Biomechanics of wheelchair propulsion during fatigue. *Archives Physical Medicine and Rehabilitation* 75:85-93, 1994.
24. Faghri P, **Rodgers MM**, Glaser RM, Bors J, Ho C, Akuthota P: The effects of FES on shoulder subluxation, arm function recovery, and shoulder pain in hemiplegic stroke patients. *Archives Physical Medicine and Rehabilitation* 75:73-79, 1994.
25. **Rodgers MM**: Dynamic foot biomechanics. *Journal of Orthopedic and Sports Physical Therapy*, 21(6):306-316, 1995.
26. Faghri P, **Rodgers MM**: The effects of functional electrical stimulation - augmented physical therapy program in the functional recovery of hemiplegic arm in stroke patients. *J Clin Kinesiol*, 51:9-15, 1997.
27. **Rodgers MM**, Tummarakota S, Lieh J: Three-dimensional analysis of wheelchair propulsion. *J Applied Biomechanics*, 14: 80-92, 1998.
28. Keyser RE, **Rodgers MM**, Gardner ER, Russell PR: Oxygen uptake during peak graded exercise and single stage fatigue tests of wheelchair propulsion in manual wheelchair users and the non-disabled. *Archives Physical Medicine and Rehabilitation*, 80:1288-92, 1999.
29. **Rodgers MM**, Mulcare JA, King DL, Mathews T, Gupta SC: Effect of an Aerobic Exercise Program on Gait Characteristics in Patients with Multiple Sclerosis. *J Rehabil Res Dev*. 36(3) 183-188, 1999.
30. **Rodgers MM**, Keyser RE, Gardner ER, Russell PR, Gorman PH: Influence of trunk flexion on biomechanics of wheelchair propulsion. *J Rehabil Res Dev*.37(3):283-295, 2000.
31. Keyser RE, **Rodgers MM**, Rasch ER: Reliability of cardiorespiratory measurements during wheelchair ergometry. *J Rehabil Res Dev*.38(4):423-430, 2001
32. **Rodgers MM**, Keyser RE, Gardner ER, Gorman PH, Russell PR: Influence of training on biomechanics of wheelchair propulsion. *J Rehabil Res Dev*.38(5):505-511, 2001
33. Finley, MA, **Rodgers, MM**, Rasch, EK, Keyser, RE, McQuade, KJ. Reliability of Biomechanical Variables during Wheelchair Ergometry. *J Rehabil Res Dev* 39(1):73-81, 2002
34. Finley, MA, Keyser, RE, **Rodgers, MM**. Impact of Physical Exercise on Controlling Secondary Conditions Associated with Spinal Cord Injury. *Neurology Report* 26(1):21-31, 2002.
35. **Rodgers MM**, McQuade KJ, Rasch EK, Keyser RE, Finley MA. Upper Extremity Fatigue Related to Joint Power Shifts in Experienced Wheelchair Users and Non-wheelchair Users. *J Rehabil Res Dev* 40(1):27-38, 2003.
36. Stanley RK, Stafford DJ, Rasch EK, **Rodgers MM**. Development of a Functional Assessment Measure for

## MARY M. RODGERS, PT, PhD, FAPTA, FASB, FISB

- Manual Wheelchair Users"; *J Rehabil Res Dev* 40(4):301-308, 2003
37. Keyser RE, Rasch EK, Finley MA, **Rodgers MM**. Effects of a Twelve-Week Home Exercise Program for Manual Wheelchair Users. *J Rehabil Res Dev* 40(6):501-510, 2003.
  38. Finley MA, Rasch EK, Keyser RE, **Rodgers MM**. The biomechanics of wheelchair propulsion in individuals with and without upper extremity impairment. *J Rehabil Res Dev* 41(3B):385-394, 2004
  39. Finley MA, **Rodgers MM**. The prevalence and identification of shoulder pathology in athletic and non-athletic wheelchair users. *J Rehabil Res Dev* 41(3B):395-402, 2004
  40. Mizelle C, Forrester L, **Rodgers MM**. Bilateral foot center of pressure measures predict hemiparetic gait velocity. *Gait and Posture* 24(3):356-63, 2006. Epub 2005 Dec 5.
  41. Jackson KJ, Mulcare JA, Donahoe-Fillmore B, Fritz HI, **Rodgers MM**: Effects of a home balance training intervention on persons with Multiple Sclerosis. *Int J MS Care* 9:111-117, 2007
  42. Patterson SL, Forrester LW, **Rodgers MM**, Ryan AS, Ivey FM, Sorkin JD, Macko RF: Determinants of walking function after stroke: Differences by deficit severity. *Arch Phys Med Rehabil*. 1:115-119, 2007
  43. Finley MA, **Rodgers MM**. Effect of two-speed geared manual wheelchair propulsion on shoulder pain and function. *Arch Phys Med Rehabil* 88(12):1622-1627, 2007
  44. Patterson SL, **Rodgers MM**, Macko RF, Forrester LW: Effect of treadmill exercise training on spatial and temporal gait parameters in individuals with chronic stroke. *J Rehabil Res Dev* 45(2):221-228, 2008
  45. Khanna I, Roy A, **Rodgers MM**, Krebs HI, Forrester LW: Effects of Unilateral Limb Loading on Gait Characteristics in Subjects with Chronic Stroke. *J Neuroengineering Rehabil* 7:23, 2010
  46. Kigin CM, **Rodgers MM**, Wolf SL: The physical therapy and society summit (PASS) meeting: Observations and opportunities. *Phys Ther* 90(11):1555-1567, 2010
  47. Boninger M, French J, Abbas J, Nagy L, Ferguson- Pell M, Johnson Taylor S, **Rodgers MM**, Saunders N, Peckham H, Marshall R, Sherwood A: Technology for Mobility in SCI Ten Years From Now. *Spinal Cord*, pp. 358-63, Vol. 50, No. 5, 2012
  48. Cowan RE, Fregly BJ, Boninger ML, Chan L, **Rodgers MM**, Reinkensmeyer DJ: Recent Trends in assistive technology for mobility. *J Neuroengineering Rehabil*, 9:20, 2012
  49. Patel P, Park H, Bonato P, Chan L, **Rodgers M**: A review of wearable sensors and systems with application in rehabilitation. *J Neuroengineering Rehabil*, 9:21, 2012
  50. Reinkensmeyer DJ, Bonato P, Boninger ML, Chan L, Cowan RE, Fregly BJ, **Rodgers MM**: Major Trends in Mobility Technology Research and Development: Overview of the Results of the NSF-WTEC European Study. *J Neuroengineering Rehabil*, 9:22, 2012 <http://escholarship.org/uc/item/1kt7c01t#page-1>
  51. **Rodgers MM**, Cohen Z, Joseph L, Rossi W: Workshop on personal motion technologies for healthy independent living: Executive Summary. *Arch Phys Med Rehabil*, 93(6):935-9, 2012.
  52. Pai VM, **Rodgers MM**, Conroy R, Luo J, Zhou R, Seto B: Workshop on Using Natural Language Processing Applications for Enhancing Clinical Decision Making – An Executive Summary. *J Am Med Inform Assoc* doi:10.1136/amiajnl-2013-001896.
  53. **Rodgers MM**, Pai VM, Conroy R: Recent advances in wearable sensors for health monitoring. *IEEE Sensors Journal* 15(6): 3119-3126, June 2015; DOI: 10.1109/JSEN.2014.2357257P.
  54. Darrell Neuffer, Marcos M. Bamman, Deborah M. Muoio, Claude Bouchard, Dan M. Cooper, Bret H. Goodpaster, Frank W. Booth, Wendy M. Kohrt, Robert E. Gerszten, Mark P. Mattson, Russell T. Hepple, William E. Kraus, Michael B. Reid, Sue C. Bodine, John M. Jakicic, Jerome L. Fleg, John P. Williams, Lyndon Joseph, Mary Evans, Padma Maruvada, **Mary Rodgers**, et al.: Understanding the Cellular and Molecular Mechanisms of Physical Activity-Induced Health Benefits. *Cell Metabolism*, Volume 22, Issue 1, Pages 4-11 (7 July 2015).

### **Book**

Kendall FP, McCreary EK, Provance PG, **Rodgers MM**, Romani WA. *Muscle Testing and Function with Posture and Pain*, fifth ed. Baltimore MD, Lippincott Williams & Wilkins, 2005

### **Book Chapters**

1. **Rodgers MM**. "Musculoskeletal Considerations in Production and Control of Movement". In Connally B & Montgomery P (eds): *Motor Control: Theoretical Framework and Practical Application to Physical Therapy*, Hixson TN, Chattanooga Corp., pp. 47-61, 1991.

## MARY M. RODGERS, PT, PhD, FAPTA, FASB, FISB

2. **Rodgers MM.** "Biomechanics of the Foot During Locomotion". In Grabiner M (ed): *Current Perspectives in Biomechanics*, Champaign IL, Human Kinetics Pub., pp. 33-52, 1992.
3. **Rodgers MM.** "Effect of Functional Electrical Stimulation". In Craik R and Otis C (eds): *Gait Analysis: Theory and Application*, St. Louis MO, Mosby, pp. 365-375, 1995.
4. **Rodgers MM.** "Musculoskeletal Considerations in Production and Control of Movement" (revised). In Montgomery P & Connally B (eds): *Clinical Applications for Motor Control*, Hixson TN, Chattanooga Corp., pp. 109-134, 2002.
5. **Rodgers MM, Conroy R, Pai V.** "Ambient and Wearable Sensors for Human Health Monitoring". In Florez-Revuelta F & Chaaaraoui AA (eds): *Ambient Assisted Living: Technologies and Applications* Institution of Engineering and Technology (IET), pp. 29-56, 2016.
6. **Rodgers MM, Conroy R, Pai V.** "Chapter 9: Body-worn Microfluidics Sensors". In Piraino F & Selimovic S (eds): *Diagnostic Devices - Efficient Microfluidic Solutions for Global Health*, James & Taylor, CRC Press, in press.

### Reports

WTEC Panel Report on European Research and Development in Mobility Technology for People with Disabilities. August 2011; [http://www.wtec.org/disability\\_research/docs/Mobility-Tech-final08.13.11.pdf](http://www.wtec.org/disability_research/docs/Mobility-Tech-final08.13.11.pdf)

### Abstracts and/or Proceedings

1. Cavanagh PR, **Rodgers MM**: Pressure distribution in normal subjects. *Proceedings of the European Society of Biomechanics*, September 1984.
2. **Rodgers MM, Cavanagh PR**: Pressure distribution in Morton's foot structure. *Medicine and Science in Sports and Exercise*, 17(2):223, 1985.
3. Radin EL, Whittle MW, Yang KH, Jefferson RJ, **Rodgers MM**, Kish VL, O'Connor JJ: The heelstrike transient, its relationship with the angular velocity of the shank, and the effects of quadriceps paralysis. In: *Proceedings of the American Society of Mechanical Engineers Annual Conference*, Dec. 1986, p.121-123.
4. Cavanagh PR, **Rodgers MM**: Asymmetry in plantar pressures during barefoot standing. *Proceedings of the European Society of Biomechanics*, September 1986.
5. **Rodgers MM, Cavanagh PR**: A device for the measurement of first ray mobility. *Proceedings of ASB/CSB combined conference*, Montreal, p. 90, August 1986.
6. **Rodgers MM, Mucino V, Yang K, Harris M**: A 3-dimensional approach to assessment of infant crawling kinematics. *Journal of Biomechanics*, 20(9): 910, 1987.
7. **Rodgers MM, Cavanagh PR**: Plantar pressure distribution measurement during walking- normal values. *International Society of Biomechanics (ISB)*, Amsterdam, 1987.
8. Yang KH, **Rodgers MM, Dibartolomeo AG, Radin EL**: Comparison of foot strike loading rates in humans. *Proceedings of the SAME Winter Annual Meeting*, Anaheim, CA, 1987.
9. Thomas B, **Rodgers MM, Nelson R, and Nestor D**: The effects of vibration prior to performance of a novel motor task. *Physical Therapy*, Vol. 67, No.5, 1987.
10. Franklin N, Nelson R, **Rodgers M, Nestor D**: The effects of single frequency vibration/acquisition of a novel motor skill. *Trends in Ergonomics/Human Factors IV*, 1987.
11. Glaser RM, Suryaprasad AG, Gupta SG, Servedio FJ, Davis GM, Figoni SF, **Rodgers MM**, & Ezenwa BN: Fitness improvements and physiological responses to FES exercise. *Rehabilitation R&D Progress Reports*, pp. 230-231, 1987.
12. Ezenwa BN, Figoni SF, Glaser RM, Ponichtera JA, **Rodgers MM**, & Almeyda JW: Automated autonomic nervous system function analysis system. *Proceedings of the Tenth Annual Conference of the IEEE Experimental Medicine and Biology Society*, 1988, pp. 1210-1211. (expanded abstract)
13. Glaser RM, Figoni SF, Collins SR, **Rodgers MM**, Suryaprasad AG, Gupta SC, & MathewsT.: Physiologic responses of SCI subjects to electrically induced leg cycle ergometry. *Proceedings of the Tenth Annual Conference of the IEEE Experimental Medicine and Biology Society*, 1988, pp. 1638-1640. (expanded abstract)
14. Figoni SF, Glaser RM, Hendershot DM, Gupta SC, Suryaprasad AG, **Rodgers MM**, & Ezenwa BN: Hemodynamic responses of quadriplegics to maximal arm-cranking and FNS leg cycling exercise. *Proceedings of the Tenth Annual Conference of the IEEE Experimental Medicine and Biology Society*, 1988, pp. 1636-1637. (expanded abstract)

## MARY M. RODGERS, PT, PhD, FAPTA, FASB, FISB

15. Riegger C, Yang K, **Rodgers M**, Mitchell J, Kish V, Soffranco R, Radin E: Gait characteristics of early stage osteoarthritis subjects as compared with normals. *Proceedings of the 4th Annual East Coast Clinical Gait Laboratories Conference*, Oct. 27-28, 1988, p. 11.
16. **Rodgers MM**, Riegger C, Yang K, Radin E: Gait characteristics of pre-tibiofemoral osteoarthritis subjects. *Medicine and Science in Sports and Exercise*, 20(2):496, 1988.
17. Blaha JD, **Rodgers MM**, Simons W, Yang KH, Kish VL: Screw axis of dynamic *in vitro* knee motion with differential hamstring loading. *Journal of Biomechanics* 21(10):856, 1988.
18. **Rodgers MM**, Figoni SF, Glaser RM, Davis GM, Servedio FJ, Suryaprasad AG, Gupta SC, Ezenwa BN: Cardiovascular responses to exercise in young and middle-aged SCI subjects. *Proceedings of the International Conference of Association for the Advancement of Rehabilitation Technology (Rehabilitation Engineering Society of North America)*, pp. 160-161, 1988. (expanded abstract)
19. Figoni SF, Davis GM, Glaser RM, Servedio FJ, Gupta SC, Suryaprasad AG, **Rodgers MM**, Ezenwa BN: FNS-assisted venous return in exercising SCI men. *Proceedings of the ICAART (RESNA)*, pp. 328-329, 1988.(expanded abstract)
20. Ezenwa BN, Figoni SF, Glaser RM, Davis GM, **Rodgers MM**: Semi-automated analysis system for impedance cardiography. *Proceedings of the ICAART (RESNA)*, 1988.
21. Figoni SF, Davis GM, Servedio FJ, Glaser RM, Suryaprasad AG, **Rodgers MM**, Ezenwa BN: Cardiovascular responses of spinal cord injured males to dynamic arm exercise during orthostasis. *Proceedings of the Annual Conference of the American Kinesiotherapy Association*, 1988.
22. Figoni SF, Davis GM, Glaser RM, Servedio FJ, Suryaprasad AG, Ezenwa BN, Seiber OL, **Rodgers MM**: FNS-enhanced venous return during arm-crank exercise in SCI men. *Proceedings of FASEB* 1988.
23. Bletzinger C, **Rodgers MM**, Killian C: Case study investigation of electrical stimulation on muscle force in a spinal cord injured patient. Fourth Annual Student Research Showcase, College of Health and Human Services, Ohio University, 1988.
24. Glaser RM, Figoni SF, Collins SR, **Rodgers MM**, et al. Physiologic responses of SCI subjects to electrically induced leg cycle ergometry. *Proceedings of the 20th Annual Neural Prosthesis Workshop*, Bethesda, MD, Oct. 18-20, 1989.
25. Glaser RM, Figoni SF, Hooker SP, **Rodgers MM**, et al. Efficiency of FNS leg cycle ergometry. *Proceedings of the Eleventh Annual Conference of the IEEE Experimental Medicine and Biology Society*, pp. 961-963, 1989.
26. **Rodgers MM**, Hangartner T, Barre P, Glaser RM. Tibial trabecular bone density vs time since spinal cord injury. *RESNA 12th Annual Conference*, 1989 p. 403-4.
27. Figoni SF, Glaser RM, **Rodgers MM**, Faghri PD, et al. Hemodynamic responses of paraplegics and quadriplegics to passive and active leg cycle ergometry. 1989 ASIA Conference.
28. Hooker SP, Glaser RM, Figoni SF, **Rodgers MM**, et al. Physiologic responses to simultaneous voluntary arm crank and electrically-stimulated leg cycle exercise in quadriplegics. *RESNA 12th Annual Conference*, 1989, p.99-100.
29. Figoni SF, Glaser RM, Hooker SP, **Rodgers MM**, et al. Peak hemodynamic responses of SCI subjects during FNS leg cycle ergometry. *RESNA 12th Annual Conference*, 1989, p. 97-8.
30. **Rodgers MM**, Figoni SF, Gayle GW, Hooker SP, Glaser RM: Comparison of forehand and backhand propulsion techniques in an elite quadriplegic wheelchair racer. *Medicine and Science in Sports and Exercise* 21(2):S107, 1989.
31. Ponichtera JA, **Rodgers MM**, Glaser RM. Concentric and eccentric isokinetic lower extremity strength of multiple sclerosis and able-bodied individuals. *Medicine and Science in Sports and Exercise* 21(2):S107, 1989.
32. Figoni SF, Glaser RM, **Rodgers MM**, Ezenwa BN, Hooker SP, Faghri PD, Gupta SC:
33. Hemodynamic responses of quadriplegics to arm, ES-leg, and combined arm + ES-leg ergometry. *Medicine and Science in Sports and Exercise*, 21(2):S96, 1989.
34. Riegger C, Yang K, **Rodgers M**, Radin E, Mitchell J, Kish V, Soffranco R: Gait characteristics of presumed early stage osteoarthritis subjects as compared with normals. *Physical Therapy* 69(5):375, 1989.
35. Hangartner T, Gabel S, **Rodgers MM**, Barre P, Glaser RM: Ultra precise CT scanner for the measurement of bone density in extremities. *Proceedings of the Orthopedic Research Society*, p. 104, 1989.
36. Yang KH, Riegger CL, **Rodgers MM**, Radin EL: Diminished lower limb deceleration as a factor in early stage osteoarthritis. *Proceedings of the Orthopedic Research Society*, p. 52, 1989.
37. Mathews T, Glaser RM, Figoni SF, **Rodgers MM**, et al. Evaluation of FES techniques for exercise. *Rehabilitation R&D Progress Reports*, p. 198-199, 1989.
38. Figoni SF, Gupta SC, Glaser RM, Suryaprasad AG, **Rodgers MM**, et al. Exercise hemodynamics of quadriplegics:



## MARY M. RODGERS, PT, PhD, FAPTA, FASB, FISB

- A pilot study. *Rehabilitation R&D Progress Reports*, p. 111-2, 1989.
39. Suryaprasad AG, Glaser RM, Figoni SF, **Rodgers MM**, et al. FNS effects upon venous pooling in geriatric and mobility-impaired patients. *Rehabilitation R&D Progress Reports*, p. 199-200, 1989.
  40. Hooker SP, Girtlen B, Figoni SF, Glaser RM, **Rodgers MM**, et al. Acid-base balance after electrically-induced leg cycle and voluntary arm crank exercise in paraplegics. *Am Spinal Injury Assoc Abstracts Digest* 78, 1990.
  41. **Rodgers MM**, Figoni SF, Glaser RM, et al. Training Responses of Spinal Cord Injured Individuals to Functional Neuromuscular Stimulation Knee Extension Exercise. *Proc 13th Ann Conf RESNA*, pp. 365-366, 1990.
  42. Schrag D, **Rodgers MM**: Reliability and accuracy of the peak performance three-dimensional motion measurement system. *Proceedings of the 6th East Coast Clinical Gait Conference*, Dec. 5-7, 1990, pp. 137-140.
  43. Hangartner TN, **Rodgers MM**, Glaser RM: Regional bone-density analysis in the tibia of spinal-cord injured patients. *Radiology*, 177:316, 1990.
  44. **Rodgers MM**, Kuntzman AJ, Glaser RM, Shively RA, Ezenwa BN: Characteristics of functional neuromuscular stimulation-induced spasticity in spinal cord injured subjects. *Proceedings of the 8th Congress of the International Society of Electrophysiological Kinesiology (ISEK)*, 1990, p. 149.
  45. Kuntzman AJ, **Rodgers MM**, Glaser RM, Shively RA, Ezenwa BN: Functional neuromuscular stimulation threshold elevation with fatiguing paralyzed muscle. *Proceedings of the 8th Congress of the International Society of Electrophysiological Kinesiology (ISEK)*, 1990, p. 413-416.
  46. **Rodgers MM**, Hooker SP, Figoni SF, et al: Training responses of SCI individuals to FNS-induced knee extension exercise. *Proceedings of the 13th Annual Conference of RESNA*, pp.365-366, 1990.
  47. Figoni SF, **Rodgers MM**, et al: Acute physiologic responses of SCI subjects to FNS knee extension exercise. *Proceedings of the 13th Annual Conference of RESNA*, pp.157-158, 1990.
  48. Ezenwa BN, Glaser RM, Couch WP, Figoni SF, Mathews T, Suryaprasad AG, **Rodgers MM**: Automated adaptive equalization system for asynchronous FNS-induced knee extension exercise for SCI subjects. *Proceedings of the 13th Annual Conference of RESNA*, pp.159-160, 1990.
  49. Kuntzman AJ, Glaser RM, Shively RA, **Rodgers MM**, et al: Muscle fatigue characteristics with FNS-induced contractions. *Pro*
  50. Hooker SP, Glaser RM, Figoni SF, **Rodgers MM**, et al: Physiologic training effects of FNS leg cycle exercise in the spinal cord
  51. Ponichtera JA, **Rodgers MM**, et al: Utilization of isokinetic dynamometry to compare concentric and eccentric lower extremity strength in multiple sclerosis and able-bodied individuals. *Proceedings of the 13th Annual Conference of RESNA*, pp.213-214, 1990.
  52. **Rodgers MM**, Figoni SF, Hooker SP, Glaser RM, et al. Responses to electrically-induced knee extension training exercise in spinal cord injured individuals. *Med Sci Sports Exerc* 22:S43, 1990.
  53. Hooker SP, **Rodgers MM**, Figoni SF, Glaser RM. Neuromuscular stimulation exercise for spinal cord injured patients. *The Ohio J Sci* 90:17, 1990.
  54. **Rodgers MM**, Barre P, Zachary S, Glaser RM. Intraoperative assessment of muscle performance during total wrist arthroplasty. *Journal of Biomechanics* 23(7):716, 1990.
  55. Hooker SP, Figoni SF, Glaser RM, **Rodgers MM**, et al. Physiologic responses to arm cranking and electrical stimulation leg cycling, part I: paraplegics. *Med Sci Sports Exerc* 22:S43, 1990.
  56. Figoni SF, Gupta SC, Glaser RM, **Rodgers MM**, et al. Evaluation of FES techniques for exercise. *Rehabilitation R&D Progress Reports*, p. 97-98, 1990.
  57. Mathews T, Glaser RM, Figoni SF, Gupta SC, Ezenwa BN, Suryaprasad AG, Parker WD, **Rodgers MM**, et al. Improving exercise performance of quadriplegics. *Rehabilitation R&D Progress Reports*, p. 96, 1990.
  58. Suryaprasad AG, Glaser RM, Hooker SP, Figoni SF, **Rodgers MM**, et al. FNS effects upon venous pooling in geriatric and mobility-impaired patients. *Rehabilitation R&D Progress Reports*, p. 98-99, 1990.
  59. Figoni SF, Hooker SP, Glaser RM, **Rodgers MM**, et al. Physiologic responses to arm cranking and electrical stimulation leg cycling, part II: quadriplegics. *Med Sci Sports Exerc* 22:S43, 1990.
  60. Hooker SP, Figoni SF, Glaser RM, **Rodgers MM**, et al. Physiologic training effects of electrical stimulation leg cycle ergometry in the spinal cord injured. *Proceedings of the Midwestern 1990 American College of Sports Medicine Annual Meeting*.
  61. Kuntzman AJ, Glaser RM, **Rodgers MM**, Shively RA, Ezenwa BN: Use of threshold current changes as an index of responsiveness and fatigability in paralyzed muscle during functional neuromuscular stimulation. *RESNA 14th Annual Conference*, p. 292-294, 1991.
  62. Ezenwa BN, **Rodgers MM**, Barre PS, Glaser RM, Zachary SV: Intraoperative tendon tension and wrist angle



## MARY M. RODGERS, PT, PhD, FAPTA, FASB, FISB

- measurement system. *RESNA 14th Annual Conference*, p. 402, 1991
63. Hangartner TN, **Rodgers MM**, Glaser RM: Bone density loss in spinal-cord injured patients. *Proceedings of the 1991 Spinal Cord Injury Research Symposium* (Oct. 31-Nov. 1, 1991), Edmonton, Canada.
  64. Hangartner TN, **Rodgers MM**, Glaser RM: Bone density in spinal cord injured patients. *8th International Workshop on Bone Densitometry*. Bad Reichenhall, Germany, April 28-May 2, 1991.
  65. **Rodgers MM**, Tummarakota S, Lieh J, Schrag DR: Three-dimensional dynamic analysis of joint reaction forces and moments during wheelchair propulsion. In: L Draganich, R Wells, and J Bechtold (Eds.), *Proceedings of the Second North American Congress on Biomechanics*, Chicago, IL:NACOB, 1992, pp. 457-8.
  66. Schutte LM, **Rodgers MM**, Glaser RM, Zajac FE: The use of the musculoskeletal system to understand muscle function in electrical stimulation-induced leg cycle ergometry. In: L Draganich, R Wells, and J Bechtold (Eds.), *Proceedings of the Second North American Congress on Biomechanics*, Chicago, IL:NACOB, pp. 565-6, 1992.
  67. **Rodgers MM**, Albert MC, Schrag DR, Glaser RM: Assessment of orthotics in cerebral palsy - kinematic and kinetic responses. *Developmental Medicine & Child Neurology*, pp. 15-6, 1992.
  68. Lieh J, **Rodgers MM**, Tummarakota S, Schrag DR: Multibody dynamics for biomechanical systems. *1992 Advances in Bioengineering ASME Winter Annual Meeting*, 22: 597-600, 1992.
  69. **Rodgers MM**, Gayle GW, Figoni SF, Kobayashi M, Glaser RM, Gupta SC: Kinematic and kinetic responses to wheelchair propulsion during fatigue in SCI individuals - a pilot study. In: JJ Presperin (Ed.), *Proceedings of the RESNA International '92 Conference*, Washington, DC: RESNA Press, 1992, pp. 202-204.
  70. Schutte LM, **Rodgers MM**, Enzenwa BN, Glaser RM, Zajac FE: Determining the direction of crank acceleration during electrical stimulation-induced leg cycle ergometry. In: JJ Presperin (Ed.), *Proceedings of the RESNA International '92 Conference*, Washington, DC: RESNA Press, 1992, pp. 238-240.
  71. Faghri PD, **Rodgers MM**, Glaser RM, Bors JG, Ho C, Akuthota P: Prevention of glenohumeral shoulder subluxation in stroke patients using functional electrical stimulation. *Proc of RESNA International Conference*, pp. 471-473, 1992.
  72. Hooker SP, Walter J, Brewster W, **Rodgers MM**, Glaser RM: Cutaneous electrical stimulation improves quadriceps isometric torque production in hemiparetics. *American College of Sports Medicine Annual Meeting*, 1992.
  73. Hooker SP, Walter J, Brewster W, **Rodgers MM**, Glaser RM: Effect of cutaneous electrical stimulation on quadriceps and hamstring isometric torque production in hemiparetics. *Sports Medicine, Training and Rehabilitation* 3:221-2, 1992.
  74. Figoni SF, Glaser RM, **Rodgers MM**, Collins SC. Total power output during FES leg cycle ergometry. *Proc of RESNA International Conference*, pp. 233-234, 1992.
  75. Kobayashi M, **Rodgers MM**, Figoni SF, Gayle GW, Schrag DR, Glaser RM: Multidisciplinary data acquisition and analysis of wheelchair ergometry. *J Biomechanics* 25:768, 1992.
  76. **Rodgers MM**, Schrag DR, Figoni SF, Collins SR, Shively RA, Glaser RM: Contribution of shank muscle to performance in electrical stimulation-induced leg cycle ergometry - a pilot study. *Proceedings of the American Society of Biomechanics*, Oct. 22, 1993, pp. 190-191.
  77. **Rodgers MM**, Albert MC, Schrag DR: Gait characteristics pre- and post-heel cord lengthening surgery in cerebral palsy children. *American Academy for Cerebral Palsy and Developmental Medicine*, Oct. 6-9, 1993.
  78. Schrag DR, **Rodgers MM**, Albert MC: Comparison of gait parameters in orthotic and surgical interventions for cerebral palsy children. *Proceedings of the 8th East Coast Clinical Gait Conference*, May 5-8, 1993.
  79. Albert MC, **Rodgers MM**, Schrag DR: Assessment of orthotics in cerebral palsy - Kinematic and kinetic responses. *Ohio Orthopaedic Society*, May 7-8, 1993.
  80. **Rodgers MM**, Barre PS, Glaser RM, Zachary SV, Schrag DR, Schwartz EW: Effect of tendon length and electrically-induced muscle contraction on tendon tension in vivo. *Proceedings of RESNA*, pp. 413-414, 1993.
  81. Faghri PD, Glaser RM, **Rodgers MM**, Bors JG: Effects of FES on shoulder muscle tone, EMG activity and function in acute hemiplegia. *Proceedings of RESNA*, pp. 410-411, 1993.
  82. Hangartner TN, **Rodgers MM**, Glaser RM, Barre PS: Effect of FES exercise on tibial bone loss in spinal-cord injured patients. *Proceedings of the 39th Annual Meeting of the Orthopaedic Research Society*, 18:398, 1993.
  83. **Rodgers MM**, Tummarakota S, Lieh J, Schrag DR: Three-dimensional dynamic analysis of joint reaction forces and moments during wheelchair propulsion. *J. Biomechanics* 26:346, 1993.
  84. Schutte LM, **Rodgers MM**, Glaser RM, Zajac FE: Contribution of hamstrings to crank acceleration in electrical stimulation-induced leg cycle ergometry: An analysis based on musculoskeletal models. *J.*

## MARY M. RODGERS, PT, PhD, FAPTA, FASB, FISB

- Biomechanics* 26:362, 1993.
85. Lewis C, **Rodgers MM**: A passive joint motion technique for quantification of spasticity. *Combined Sections Meeting of APTA*, Feb. 2-6, 1994.
  86. Hangartner, TN, **Rodgers MM**, Glaser RM: Reduction of bone density loss in patients with spinal cord injury using functional electrical stimulation. *10th International Bone Densitometry Workshop*, April 24-28, 1994.
  87. **Rodgers MM**, Gayle GW, Gupta SC, Figoni SF, Parker WD, McCarty T, Glaser RM: Initial findings from an exercise program for non-athletic wheelchair users. *APTA Section on Research*, 27:17, 1994.
  88. **Rodgers MM**, Ponichtera-Mulcare JA, King DL: Gait Characteristics of Multiple sclerosis patients pre and post an exercise training program. *Proceedings of American Society of Biomechanics*, pp. 155-6, 1994.
  89. **Rodgers MM**, Glaser RM: Biomechanical comparison of functional electrical stimulation-induced and active knee extension exercise. *Proceedings of American Society of Biomechanics*, pp.217-8, 1994.
  90. Figoni SF, **Rodgers MM**, Glaser RM: Effects of electrical stimulation of shank musculature during es-leg cycle ergometry. *1994 American College of Sports Medicine Annual Meeting*.
  91. Hangartner, TN, **Rodgers MM**, Glaser RM: Functional electrical stimulation reduces bone density loss in patients with spinal cord injury. *World Congress on Medical Physics and Biomedical Engineering*, 1994.
  92. Albert MC, **Rodgers MM**, Schrag DR: Uninvolved limb compensation following heel cord lengthening surgery in hemiplegic cerebral palsy children. *Pediatric Orthopaedic Society of North America Annual Meeting*, May 12-14, 1994.
  93. King DL, **Rodgers MM**, Ponichtera-Mulcare JA: Disease severity in multiple sclerosis and its affect on gait. *1st Annual North American Clinical Gait Laboratory Conference*, April 7-9, 1994.
  94. Schrag DR, **Rodgers MM**, Albert MC: Compensatory responses to fixed ankle foot orthoses in the uninvolved limb of hemiplegic cerebral palsy children. *1st Annual North American Clinical Gait Laboratory Conference*, April 7-9, 1994.
  95. Aaronson AL, **Rodgers MM**, Figoni SF, Glaser RM: Psychological changes resulting from electrical stimulation training of spinal-cord injured. *American Psychological Association Convention*, 1994.
  96. **Rodgers MM**, Gayle GW, Gupta SC, Figoni SF, Parker WD, McCarty T, Glaser RM: Initial findings from an exercise program for non-athletic wheelchair users. *APTA Combined Sections Conference*, 1995.
  97. **Rodgers MM**, Glaser RM, Blum JS: Mediolateral leg restraint forces in electrical stimulation-induced leg cycle ergometry - A pilot study. *World Confederation for Physical Therapy Congress*, p.76, 1995.
  98. **Rodgers MM**, Gorman P, Keyser R, Russell P: Wheelchair propulsion performance in young, middle-aged, and elderly. *Rehabilitation R&D Progress Reports*, p.29-30, 1995.
  99. **Rodgers MM**: Wheelchair propulsion biomechanics. *Announcer*, p. 41, 1996.
  100. Pringle DD, **Rodgers MM**, Albert MC: Quantitative gait analysis in children with hemiplegic cerebral palsy equinus gait. *Proceedings of the Fifteenth Southern Biomedical Engineering Conference*, p.35-38, 1996.
  101. **Rodgers MM**, Gorman PH, Russell PJ, Keyser RE: Kinematic and kinetic effects of training in wheelchair users. *APTA Section on Research Newsletter*, 29(2):19, 1997.
  102. Keyser RE, **Rodgers MM**, Russell PJ, Gorman PH: Cardiorespiratory responses to graded exercise tests and sustained submaximal exercise on the wheelchair ergometer. *APTA Section on Research Newsletter*, 29(2):17-8, 1997.
  103. Keyser RE, Russell PJ, **Rodgers MM**, Gorman PH: Estimation of body fat by skinfold measurement in wheelchair users. *APTA Section on Research Newsletter*, 29(2):19-20, 1997.
  104. **Rodgers MM**, PJ Russell, RE Keyser, J Parker, PH Gorman: Effects of training on joint and handrim kinetics in wheelchair users. *Proceedings of the American Society of Biomechanics*, 206-7, 1997.
  105. **Rodgers MM**, Russell PJ, Keyser RE, Gardner ER, Gorman PH: Training effects on muscle activity during wheelchair propulsion in wheelchair users. Given at the *Combined Sections Meeting of APTA*, Feb., 1998. Published in *Section on Research Newsletter*, 30(1):17, 1997.
  106. **Rodgers MM**, Gardner ER, Russell PJ, Keyser RE, Gorman PH, Parker J: Fatigue-induced changes in biomechanics and muscular activity during manual wheelchair propulsion. *XIIth Congress of the International Society for Electrophysiology and Kinesiology (ISEK)*, June, 1998.
  107. **Rodgers MM**, Keyser RE, Gardner ER, Russell PJ, Parker J, Gorman PH: Influence of propulsion style on injury potential in wheelchair users. *Proceedings of NACOB '98, The Third American Congress on Biomechanics*, Waterloo, Canada, 73-4, 1998.
  108. **Rodgers MM**, Keyser RE, Gardner ER, Russell PJ, Gorman PH: Effects of propulsion style and training on

## MARY M. RODGERS, PT, PhD, FAPTA, FASB, FISB

- biomechanical and physiologic indices of wheelchair propulsion performance. *The 2nd International Workshop "Biomedical Aspect of Manual Wheelchair Propulsion: The State of the Art II"*, Amsterdam, The Netherlands, Dec. 1998.
109. Feliciano DJ, **Rodgers MM**, Stanley R, Gardner ER: Functional outcome tool for manual wheelchair users. *APTA Section on Research Newsletter* 30(3):10, 1998.
  110. Keyser RE, Kalappa N, **Rodgers MM**, Cade WT, Flores RH: Diminished muscle function in females with SLE. *Combined Sections Meeting of APTA*, Feb. 2000
  111. Gardner, ER, **Rodgers MM**, Keyser RE. Measurement Reliability of Handrim Kinetics and Temporal characteristics during wheelchair ergometry. *Combined Sections Meeting of APTA*, Feb. 2000
  112. Finley MA, **Rodgers MM**, Gardner ER, McQuade KJ: The prevalence of shoulder pathology an athletic and non athletic wheelchair users. *JOSPT*, 30(1):A42, 2000.
  113. **Rodgers MM**, Keyser RE, Gardner ER, Russell PJ, Gorman PH. Influence of propulsion style on injury potential in wheelchair users. *VA Research Conference*, 2000
  114. Gardner ER, RE Keyser, **MM Rodgers**. Shifts in shoulder joint power during wheelchair propulsion in manual wheelchair users. *VA Research Conference*, 2000
  115. Stevenson CA, Rasch EK, **Rodgers MM**: Symmetry of wheelchair handrim kinetics in manual wheelchair users during a submaximal exercise test to fatigue. *Neurology Report* 24(5): 195-196, 2000
  116. Finley MA, **Rodgers MM**, Rasch EK, Keyser RE, Parker JA: Handrim kinetics in manual wheelchair users with and without upper extremity impairment. *Neurology Report*, 24(5): 184, 2000
  117. McQuade KJ, Gardner ER, **Rodgers MM**, Keyser RE, Finley MA: Electromyographic responses in manual wheelchair users during wheelchair propulsion to fatigue. *Proceedings of the 2nd National Conference of the VA Rehabilitation R&D Service*, 166, February 20-22, 2000
  118. Finley, MA, **Rodgers, MM**, Gardner, EL, McQuade, JK. Shoulder Pathology in Wheelchair Athletes-A Pilot Study. *Conference Proceedings of the 5<sup>th</sup> Scientific Congress of the Paralympics*. Sydney, Australia, P05.06, October 11-13, 2000.
  119. RK Stanley, **MM Rodgers**, E Rasch. Effects of exercise training on functional performance of manual wheelchair users. *Med Sci Sports Exerc.* 2001, 33:S321.
  120. Keyser RE, **Rodgers MM**, Rasch EK. Simulated wheelchair propulsion and upper extremity impairment. *Med Sci Sports Exerc.* 2001, 33:S320
  121. **MM Rodgers**, EK Rasch, MA Finley, RE Keyser, PR Gorman. Propulsion Biomechanics and Functional Performance of Manual Wheelchair Users. *Proceedings of the 18<sup>th</sup> Congress of the International Society of Biomechanics*, 7/01. Zurich, Switzerland.
  122. Finley MA, McQuade KJ, **Rodgers MM**. Peak Shoulder Joint Kinetics and Kinematics during Wheelchair Propulsion, *Proceedings of the 25<sup>th</sup> Annual Meeting of the American Society of Biomechanics*, San Diego, CA, p385, August, 2001
  123. Finley MA, Keyser RE, Stanley RK, **Rodgers MM**. Upper Extremity Impairment in wheelchair propulsion, *IV World Congress of Biomechanics*, Calgary, Canada, 8/02.
  124. **MM Rodgers**, Finley MA. Wheelchair propulsion biomechanics with upper extremity impairment and fatigue. *IV World Congress of Biomechanics*, Calgary, Canada, 8/02.
  125. Finley MA, **MM Rodgers**. Scapular kinematics during transfers in wheelchair users. *Proceedings of the 19<sup>th</sup> Congress of the International Society of Biomechanics*, 7/03. Dunedin, New Zealand.
  126. Finley MA, McQuade KJ, **Rodgers MM**. Effect of shoulder impingement on scapular kinematics during selected tasks in wheelchair users. *Proceedings of the 27<sup>th</sup> Annual Meeting of the American Society of Biomechanics*, Toledo, OH, September 2003.
  127. **Rodgers MM**, Forrester L, Mizelle C, Harris-Love, M. Effects of gait velocity on COP symmetry measures in individuals with stroke. *Proceedings of the 28<sup>th</sup> Annual Meeting of the American Society of Biomechanics*, Portland, OR, September 2004.
  128. Chris Mizelle, Larry Forrester, **Mary Rodgers**. (2005). Center Of Pressure Measures Predict Hemiparetic Gait Velocity. *Combined XX<sup>th</sup> International Society of Biomechanics and 29<sup>th</sup> American Society of Biomechanics Meeting*, Cleveland, OH, 2005.
  129. Finley, M.A., Gordes, K.L., Meginniss, S., **Rodgers, M.M**. Effect of two-speed manual wheelchair wheel on shoulder pain in wheelchair users. *Proceedings of the 22<sup>nd</sup> International Seating Symposium*, Vancouver, Canada, March 2-4, 2006.

## MARY M. RODGERS, PT, PhD, FAPTA, FASB, FISB

130. Elizabeth K. Rasch, Jay Magaziner, Larry Magder, Marc C. Hochberg, **Mary M. Rodgers**, Barbara M. Altman. Consequences of prevalent and incident health conditions among community dwelling adults with mobility limitations in the United States. *Disability Forum of the 134th Annual Meeting & Exposition* (November 4-8, 2006), Boston, MA.
131. **M Rodgers**, L Forrester, S Patterson, R Macko. Biomechanical correlates to aerobic treadmill training in individuals with chronic stroke. *World Congress of Biomechanics* (August 1-5, 2006), Munich, Germany.
132. Finley, MA, **Rodgers, MM**. Effect of 2-speed wheelchair wheel on shoulder pain in wheelchair users, *Journal of Orthopedic and Sports Physical Therapy*, Vol37(1), Jan 2007, A4.
133. CJ Lin, FC Su, **MM Rodgers**. Segmental power during unilateral and bilateral reaching. *Northeast Regional Biomechanics Meeting*, College Park, MD March 30-31, 2007.
134. P Geigle, R Miller, **MM Rodgers**, K Mangione. Pilot study assessing physiologic and functional impact of a moderate intensity home exercise intervention for individuals after traditional hip fracture treatment. *Annual Conference of the APTA*, Baltimore, MD June 2009.
135. **MM Rodgers**, P Geigle, R Miller. Pilot study of gait symmetry effects following hip fracture. *Proceedings of the 33rd Annual Meeting of the American Society of Biomechanics*, State College, PA, August, 2009.
136. Russell, IM, Brown KG, Munaretto JM, Gunderson L, Wagner EV, Furuasu J, **Rodgers MM**, McNitt-Gray JL. Assessing mechanical demand imposed on the upper extremity during manual wheelchair propulsion in realistic contexts. *Proceedings of the 24th Congress of the International Society of Biomechanics*, 8/13. Natal, Brazil.
137. **M Rodgers**, M Fujimoto, WN Bair, M Inacio, AS Ryan, MG Prettyman, BA Beamer, DA Yungher, O Addison, P Young, J Whittall, MW Rogers; Lateral Stability and Falls: An Overview of Biomechanical Findings from the FALLS Project. *7th World Congress of Biomechanics* (July 6-12, 2014), Boston, MA.
138. Russell IM, Requejo PS, Mulroy S, Muller-Karger C, **Rodgers MM**, McNitt-Gray JL Modifications of propulsion mechanics with increases in speed alters distribution of mechanical demand imposed on the upper extremity. *Proceedings of the 25th Congress of the International Society of Biomechanics*, 7/15, p.97-8. Glasgow, UK.
139. Glickman L, **Rodgers M**, Conroy V, Kenny D, Marchese V, Rowthorn V, Stines E; Transformational interprofessional education (IPE) and collaborative practice (CP) strategies: Focus on implementation. *Education Leadership Conference 2015*, Oct. 2, 2015, Baltimore, MD.
140. Wagner EV, Russell IM, Muller-Karger C, Requejo PS, **Rodgers MM**, Flashner H, McNitt-Gray JL. An approach for characterizing complex multiplanar upper extremity motion through parsed angular velocity vector components. *Proceedings of the 40th American Society of Biomechanics*, 8/16. Raleigh, NC.

### INVITED PRESENTATIONS

- 1986.6 Lower Extremity Biomechanics During Walking and Running: A Quantitative Review. *APTA Annual Conference*. Chicago, IL
- 1986.9 Current concepts in the biomechanics, evaluation, and treatment of locomotor dysfunction and running injuries. Conference sponsored by WVU School of Medicine. Morgantown, WV.
- 1987.2 Lower Extremity Biomechanics and Experimental Methods and Locomotor Applications. Invited Speaker, Research Section, *APTA Combined Sections Meeting*.
- 1989.6 FNS knee extension weight training. Part of symposium entitled "Evaluation of functional neuromuscular stimulation exercise techniques". *RESNA 12th Annual Conference*. Montreal, CANADA
- 1989.11 Research in functional electrical stimulation at Wright State University: Past, present, and future. Invited keynote speaker, Ohio Chapter of APTA. Columbus, OH.
- 1990.6 Functional neuromuscular stimulation: Theory and exercise application. Seminar, *13th Annual RESNA Conference*, Washington, D.C.
- 1991.1 Fitness assessment and exercise training for spinal cord injured individuals: Recommendations based on current research. Invited day-long course for Neurology Section of APTA, *1991 APTA Combined Sections Meeting*, Orlando, FL.
- 1991.2 Overview of current FNS research. *1991 APTA Combined Sections Meeting*, Orlando, FL.

## MARY M. RODGERS, PT, PhD, FAPTA, FASB, FISB

- 2000.6 Invited Faculty for *Association of American Medical Colleges*. Professional Development Seminar for Senior Women in Medicine.
- 2001.10 Invited Speaker for Graduation, Physical Therapy Program, Andrews University, Dayton, OH
- 2003.4 Greene Memorial Lecture in Physical Therapy. Department of Physical Therapy, Springfield College, Springfield, MA
- 2003.10 Physical Therapy Scholarship – Successful External Funding. *Academic Administrators Special Interest Group, Education Section, APTA*. San Antonio, TX.
- 2005.8 Rehabilitation and Biomechanics. President’s lecture. *20<sup>th</sup> Congress of the International Society of Biomechanics*, Cleveland, OH
- 2007.7 Rehabilitation Biomechanics in Wheelchair propulsion and Hemiparetic Gait. Invited Keynote. *21<sup>st</sup> Congress of the International Society of Biomechanics*, Taipei, Taiwan.
- 2010.12 Home-based technologies in support of independent living. Medical Rehab Advisory Board.
- 2010.12 WTEC: International Assessment of Technologies for Persons with Disabilities. Medical Rehab Advisory Board.
- 2011.1 Federal Funding for Rehabilitation Research. *Enhancing Rehabilitation Research in the South (ERRIS) workshop*, Charlottesville, VA
- 2011.10 *Keynote Address: Discussion of Physical Therapy and Society Summit (PASS), Educational Leadership Meeting (ELC, APTA)*, Clearwater, FL.
- 2012.1 Federal Funding for Rehabilitation Research. *Enhancing Rehabilitation Research in the South (ERRIS) workshop*, Charlottesville, VA
- 2012.1 Rehabilitation Science Research at the University of Maryland Baltimore. Arthritis Research UK Biomechanics & Bioengineering Centre, Cardiff University, Wales, UK
- 2012.2 Federal Funding Panel, *Combined Sections Meeting of APTA*, Chicago, IL
- 2012.4 Pilot Studies Workshop: Getting the Most From A Pilot, *Pepper OAIC 2012 Annual Meeting*, Co-presenter with Kenneth E. Schmader, MD, Bethesda, MD
- 2012.11 Wearable sensors and systems with application in rehabilitation. *8<sup>th</sup> Annual International Medical Automation Conference*. Johns Hopkins School of Medicine, Baltimore, MD
- 2013.1 Federal Funding for Rehabilitation Research. Training in Grantsmanship for Rehabilitation Research (TIGRR) workshop. Chapel Hill, NC
- 2013.2 Research Funding Symposium. *Combined Sections Meeting of APTA*, San Diego, CA.
- 2014.1 Federal Funding for Rehabilitation Research. *Training in Grantsmanship for Rehabilitation Research (TIGRR) workshop*. Chapel Hill, NC
- 2014.2 Research Funding Symposium. *Combined Sections Meeting of APTA*, Las Vegas, NV
- 2014.7 Navigating NIH. *14<sup>th</sup> Biennial Expert Scientific Meeting*, Boston, MA
- 2015.1 Federal Funding for Rehabilitation Research. *Training in Grantsmanship for Rehabilitation Research (TIGRR) workshop*, Charleston, SC
- 2015.2 Research Funding Symposium. Combined Sections Meeting of APTA, Indianapolis, IN.
- 2015.5 Moving Forward: New approaches to physical therapy and rehabilitation science. *University of Maryland School of Medicine Sprint 2015 Symposium: Innovation and Discovery*. Owings Mills, MD
- 2015.7 “Outreach Panel” and “Women in ISB Lunch” presentations. *International Society of Biomechanics Conference*, Glasgow, UK
- 2015.9 Interview for *ISB Now* <http://isbnow.isbweb.org/2015/09/interview-with-mary-rodgers-past-president-2003-2005/> and video posted on the ISB website: <https://isbweb.org/activities/videos/155-keynote-lecture/576-julie-mary-interview>
- 2016.8 Women in Science: NIH/Grant Writing. *American Society of Biomechanics Conference*, Columbus, OH
- 2016.1 Federal Funding for Rehabilitation Research. *Training in Grantsmanship for Rehabilitation Research (TIGRR) workshop*, Charleston, SC