

BIOGRAPHICAL SKETCH

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NAME: Finley, Margaret A.

eRA COMMONS USER NAME (credential, e.g., agency login): FINLEYPI

POSITION TITLE: Associate Professor

EDUCATION/TRAINING (*Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.*)

INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
University of Maryland College Park, MD	B.S.	1985	Kinesiological Science
University of Maryland School of Medicine, Baltimore, MD	B.S.	1987	Physical Therapy
University of Maryland College Park, MD	M.A.	1993	Biomechanics
University of Maryland, Baltimore, MD	Ph.D.	2003	Rehabilitation Science
Baltimore VAMC, RR&D	Post-doc (Associate Investigator)	2005	Rehabilitation Research

A. Personal Statement

My primary research interest is the *identification and ultimately mitigation of secondary conditions in persons with chronic health conditions, impairments, activity and participation limitations*. My research has focused on individuals who use a manual wheelchair for community mobility as well as persons with chronic neuromuscular conditions such as stroke. My current position has allowed me the opportunity to bring my skills and experience back to the population of individuals with SCI. Throughout my career, I have worked in projects from inception as pilot research through the completion of randomized clinical trials, developing expertise in research, clinical and biomechanical methods, and impairment assessment as well as clinical trials applying therapeutic interventions. These experiences demonstrate my ability for successful interdisciplinary collaboration with each investigation producing peer-reviewed manuscripts. Most recently, I was the PI on an interdisciplinary study investigating association of physical factors, musculoskeletal pain and duration of manual wheelchair use in individuals with chronic SCI as well as a pilot study on psychosocial factors and pain in manual wheelchair users. Findings from these two projects resulted in two peer-reviewed manuscripts and four national presentations and provided pilot data for the funded Department of Defense, multi-site study (DoD SCIRP W81XWH-17-1-0476, PI-Finley). This collaborative project builds upon previous work and employs a biopsychosocial approach to musculoskeletal pain in individuals with spinal cord injury. This project investigates the association and interaction of psychosocial factors in the development and progression of musculoskeletal pain from acute to chronic state following SCI. Identification of factors in the early phase will allow for development of psychologically informed, directed interventions to mitigate progression from acute pain to chronic pain and the associated loss of community participation. Ultimately, this work will lead to the development of a *biopsychosocial prospective surveillance model*, an approach that promotes early detection, intervention, and prevention of these factors. The current project will provide specific information on how psychosocial factors and pain impact community mobility in individuals as they transition from the acute phase following injury to community re-integration.

1. **Finley M.A.**, Ebaugh, D., Trojjan, T. Agreement of musculoskeletal ultrasound and clinical assessment of shoulder impairment in manual wheelchair users with various duration of spinal cord injury. (2018) *Archives of Physical Medicine and Rehabilitation*, 99; 615-622. doi:10.1016/j.ampr.2017.12.015
2. **Finley, MA** & Ebaugh, DD. Association of pectoralis minor extensibility, shoulder mobility and duration of manual wheelchair use. (2017). *Archives Physical Medicine and Rehabilitation*, 98(10), 2028-2033
3. **Finley, MA**, Rodgers, MM. The prevalence and identification of shoulder pathology in athletic and non-athletic wheelchair users with shoulder pain-a pilot study. (2004) *Journal of Rehabilitation Research and Development*, 41(3b), June, pp 395-402. PMID:15543457
4. **Finley, MA**, McQuade, KJ, Rodgers, MM. Scapular function during transfers in manual wheelchair users with and without shoulder impingement. (2004) *Clinical Biomechanics*, 20(1), 32-40. PMID:15567534

B. Positions and Honors

Positions and Employment

1987-1990	Staff Physical Therapist, Burch, Rhoads, & Loomis, Annapolis, MD
1990-1994	Senior Physical Therapist, Allsports Physical Therapy Center, Greenbelt, MD
1991-1995	Contract Physical Therapist, Meade Physical Therapy, Kimbrough Army Hospital, Fort Meade, MD
1994-1997	Director of Physical Therapy, Omni Physiotherapy Associates, Bowie, MD
1996-1997	Adjunct Faculty, UMSOM, Dept of Physical Therapy, Baltimore, MD
1997-1998	Consultant (Curriculum Development), George Washington University, Program in Physical Therapy, Washington, DC
1997-1998	Clinical Director of Sports Medicine, National Hospital Medical Center, Arlington, VA
1997-1998	Physical Therapist, Home Health, I.C.A.R.E., Alexandria, VA
1998-2003	Graduate Research Assistant/Teaching Assistant, UMSOM, Dept of Physical Therapy, Baltimore, MD
1998-1999	Director of Clinical Practice, Physical Therapy Associates, University Physicians, Inc, Baltimore, MD
1999-2001	Staff Therapist, Physical Therapy Associates, UM SOM, Dept of Physical Therapy, Baltimore, MD
2001-2002	Staff Therapist, BVAMC, Dept of Rehabilitation (Clinical Sharing Program UM-PTRS, BVAMC)
2002-2003	Pre-Doctoral Health Rehabilitation Research Fellow, BVAMC
2003-2005	Associate Investigator, BVAMC, Baltimore, MD
2003-2005	Assistant Professor (adjunct), UMSOM, Dept PTRS, Baltimore, MD
2005-2007	Assistant Professor, UMSOM, Dept of Physical Therapy, Baltimore, MD
2005-2007	Career Development Awardee, BVAMC, Baltimore, MD
2007-2014	Associate Professor (with tenure), Krannert School of Physical Therapy (KSPT), University of Indianapolis, Indianapolis, IN
2007-2014	Research Scientist (WOC appointment) Roudebush VAMC Indianapolis, IN
2014-	Associate Professor (tenure track), Drexel University, Physical Therapy and Rehabilitation Sciences, Philadelphia, PA

Other Experience and Professional Memberships

1987 - Present	Member, American Physical Therapy Association (APTA) Orthopedic Section member (1990 – present) Sports Section member (1990 – present) Research Section member (1998 – present) Biomechanics Special Interest Group (2008-present) Neurology Section member (2012-present) Federal Physical Therapy Section Member (2004-2007)
1998 - Present	Member, American Society of Biomechanics (ASB)
1999 - Present	Member, International Society of Biomechanics (ISB)
2002 - Present	Official of the National Wheelchair Basketball Association, Classifier
2004 - Present	<i>Ex Officio</i> , MDRavens Disability Awareness, Inc
2005 - 2007	Research & Development Committee, VAMC, Baltimore, MD
2010 - Present	Abstract reviewer, American Society of Biomechanics Annual Conference
2010 – 2013	Vice Chair, Biomechanics Special Interest Group of the APTA

2010 – 2014	Institutional Review Board, University of Indianapolis, Committee member
2014 - Present	Institutional Review Board, Drexel University, Committee member
2015- Present	VAMC Rehabilitation Research & Development Small Projects in Rehabilitation Research (SPiRE) Grant Review Panel
2015 – Present	NIH Center for Scientific Review, Nursing and Related Clinical Sciences (NRCS) Special Emphasis Panel (SEP)
2017 - Present	NIH Center for Scientific Review, National Institute of Child Health and Human Development Special Emphasis Panel

Honors

1999	Foundation for Physical Therapy Doctoral Scholarship (PODS)
2004	Outstanding Adjunct Faculty, Master of Physical Therapy, Class of 2004
2011	Sarah Baskin Award for Excellence in Research, Co-author, 1st place, Clinician Research category, Rehabilitation Institute of Chicago
2016	Alpha Eta National Scholastic Honor Society for Allied Health Professions (Faculty)
2017	Drexel University Career Development Award, 2017

C. Contribution to Science

1. Upper extremity function and clinical assessment in individuals with chronic health conditions

My work has addressed biomechanical and clinical measures for assessing and comparing upper extremity impairment and limitations in individuals with chronic health conditions. These publications identified the altered biomechanical patterns and clinical impairments seen in individuals including manual wheelchair users and individuals with stroke. I served as the PI or co-investigator on all of these research studies.

- a. **Finley M.A.**, Ebaugh, D., Trojian, T. Agreement of musculoskeletal ultrasound and clinical assessment of shoulder impairment in manual wheelchair users with various duration of spinal cord injury. (2018) *Archives of Physical Medicine and Rehabilitation*, 99; 615-622. doi:10.1016/j.ampr.2017.12.015
- b. **Finley, MA** & Ebaugh, DD. Association of Pectoralis Minor Extensibility, Shoulder Mobility and Duration of Manual Wheelchair Use. (2017) *Archives Physical Medicine and Rehabilitation*, 98(10), 2028-2033 <http://www.sciencedirect.com/science/article/pii/S0003999317302630>
- c. **Finley, MA**, Lee, R. The effect of sitting trunk posture on 3-dimensional scapular kinematics. (2003) *Archives of Physical Medicine and Rehabilitation*, 84(4), 563-568. PMID:12690596
- d. Rundquist, PJ, Dumit, M, Hartley, J, Schultz, K., **Finley, MA**. Three-dimensional shoulder complex kinematics in individuals with upper extremity impairment from chronic stroke. (2011), *Disability & Rehabilitation*. 2012;34(5):402-7. PMID:22351959
- e. **Finley, M.** Combs, S., Carnahan, K, Peacock, S, Van Buskirk, A .Comparison of “less affected limb” reaching kinematics in individuals with chronic stroke and healthy age-matched controls. (2012) *Physical and Occupational Therapy in Geriatrics*, 30(3), 245-259

2. Therapeutic intervention in individuals with chronic health conditions

In support of reducing impairment, activity and participation limitations in individual with chronic health conditions and residual secondary impairments I have investigated the application of therapeutic interventions. These clinical trials have utilized various exercise modalities to produce significant reductions in upper extremity impairments and improvements in activity and participation in individuals who use manual wheelchair and in person with chronic stroke. This body of work supports my goal to develop intervention to successfully reduce limitation in the population of individuals with secondary conditions associated with chronic health conditions.

- a. Keyser, RE, Rasch, EK, **Finley, MA**, MM, Rodgers, MM. Increased upper body endurance following a twelve-weeks home exercise for manual wheelchair users. (2003), *Journal of Rehabilitation Research and Development*, 40(6), 2003, 501-510. PMID:1507766
- b. **Finley, MA**, Rodgers, MM. Effect of two-speed manual wheelchair wheel on shoulder pain and function in manual wheelchair users.(2007) *Archives of Physical Medicine and Rehabilitation*, 18(12). 1622-1627. PMID:18047877
- c. **Finley, MA**, Fasoli, SE, DiPietro, L, Ohlhoff, MacClellan, L, Meister, C, Whitall, J, Macko, R, Bever, CT, Krebs, HI, Hogan. Short duration upper extremity robotic therapy in stroke patients with severe upper

extremity motor impairment, (2005), *Journal of Rehabilitation Research and Development*, 42(5), September/October 683-92. PMID:16586194

d. Conroy, S., Whittall, J., Dipietro, L., Jones-Lush, L.; Zhan, M. **Finley, MA.** Wittenberg, G.F., Krebs, H.I. Bever, CT. The effect of gravity on robot-assisted motor training after chronic stroke: a randomized trial. (2011), *Archives of Physical Medicine and Rehabilitation*. (2011) Nov;92(11):1754-61. Epub 2011 Aug 17. PMID:21849168

e. Combs, SA, **Finley, MA**, Henss, M, Himmler, SL., Lapota, KC, Stillwell, DE. Effects of a repetitive gaming intervention on upper extremity impairments and function in persons with chronic stroke: A case series. (2011), *Disability and Rehabilitation*, 34(15), 1291-1298. doi: 10.3109/09638288.2011.641660

3. Outcomes measures of secondary conditions in persons with chronic conditions

In support of the biomechanical approach in the study of secondary conditions in persons with chronic conditions I have evaluated the tools that have been utilized in these investigations. It is essential that clinical research understand the reliability and validity of our measures that we apply to a specific population. These publications represent work in determining reliability and accuracy of instrumentation and methods in my research.

a. **Finley, MA**, Rodgers, MM, Rasch, EK, Keyser, RE, McQuade, KJ. Reliability of biomechanical variables during wheelchair ergometry. (2002) *Journal of Rehabilitation Research and Development*, 39(1), Jan/Feb, 73-82. PMID:11926329

b. **Finley, MA**, Dipietro, L, Ohlhoff, J., Whittall, J., Krebs, H.I., Bever, CT. The effect of repeated measurements using an upper extremity robot on healthy adults, (2009), *Journal of Applied Biomechanics*, 29 (2), 103-110. PMID:19483254,

c. **Finley, MA**, Goodstadt, N., Soler, D., Somerville, K., Friedman, Z., Ebaugh, D. Reliability and Validity of a Novel Technique for Active and Passive Pectoralis Minor Muscle Length Measures. (2017) *Brazilian Journal of Physical Therapy*, 21(3), 212-218

<http://www.sciencedirect.com/science/article/pii/S1413355517300667>

d. Wright, H. O'Brien, V., Valdes, K., Koczan, B., MacDermid, J., Moore, E., **Finley, MA**. Relationship of the patient specific functional scale to commonly used clinical measures in hand osteoarthritis. (2017) *Journal Hand Therapy*, 30(4):538-545.

e. Ebaugh, D.E., Poliin, T*, Mohring, J.*, Gerrity, K., Goodstadt, N., **Finley, MA**. Pectoralis minor muscle elongation and scapulothoracic motion do not differ in individuals with short versus typical resting pectoralis minor muscle length: a cross-sectional study. (2018) *Brazilian Journal of Physical Therapy* (in press, 4/24/18

Complete List of Published Work in MyBibliography: <https://www.ncbi.nlm.nih.gov/sites/myncbi/1n7vnjAuF-jkk/bibliography/47998055/public/?sort=date&direction=descending>

D. Research Support

Current Research Support

Department of Defense Spinal Cord Injury Research Program Investigator Initiated Research Award

"Development of a Biopsychosocial Prospective Surveillance Model of Shoulder Pain in Individuals with Spinal Cord Injury"

Total Funding: \$664,270

08/01/2017 – 07/31/2020

Role: Principal Investigator

Completed Research Support

Faculty seed grant Finley (PI)

05/01/2015 – 10/31/2016

Drexel University, College of Nursing and Health Professions

"Factors associated with shoulder pain in manual wheelchair users with spinal cord injury"

The goal of this research is to identify physical impairments of the upper extremity that are associated with shoulder pain in manual wheelchair users with spinal cord injury.

Role: PI

InQuery Collaborative Grant, funded by the Lilly Endowment, Inc. Finley (PI)

05/2013 - 05/2015

"The relationship to impairment level, daily arm use and overuse in individuals with impairment from chronic stroke".

The aim of the study was to comparison between the impaired and less impaired limb as well as the relationship of the activity to level of impairment.

Role: PI

InQuery Collaborative Grant, funded by the Lilly Endowment, Inc. Finley (PI) 05/2013 - 05/2015

"The effect of prosthetic modifications on gait characteristics and associated secondary conditions in persons with transfemoral amputations "

The goals of this study were to examine gait biomechanics of a individuals with transfemoral amputations to determine the prevalence of characteristics commonly associated with secondary conditions such as osteoarthritis and back pain.

Role: PI

InQuery Collaborative Grant, funded by the Lilly Endowment, Inc. Finley (PI) 05/2012 - 05/2014

"Pilot testing of a novel axial rotation unit in individuals with transfemoral amputations"

This project aimed to investigate the use of a novel axial torque absorber on gait in persons with transfemoral amputations.

Role: PI

InQuery Collaborative Grant, Lilly Endowment, Inc Finley(PI) 05/2011 - 05/2014

"Modification and beta testing of a novel therapeutic exercise for improving upper extremity motor function in persons with chronic stroke"

The goal of this project was to modify an existing gaming system based on results from a previous case series.

Role: PI

Merit Review Grant (competitive renewal), (PI: Bever, CT, Co-I, 5%effort) 03/2009 - 02/2012

"Evaluation of Upper Extremity Robotic Neuro-rehabilitation in Stroke Patients"

The purpose of this randomized clinical trial was to compare outcomes among different forms of robotic-assisted intervention in person with chronic stroke.

Role: Co-I

InQuery Collaborative Grant, Lilly Endowment, Inc. Finley (PI) 05/2010 - 12/2012

"Relationship of prosthetic socket design and gait function in Veterans with transfemoral amputations"

This study investigated the effect of socket design on gait characteristics in person with transfemoral amputations.

Role: PI