

CURRICULUM VITAE

BIOGRAPHICAL

Name: Theresa Marie (Tartamella) Crytzer

Citizenship: United States

Business Address: Duquesne University
106 Rangos School of Health Sciences
Pittsburgh, PA 15282

Email: crytzert@duq.edu

EDUCATION AND TRAINING

Undergraduate Carlow University BA Psychology/English
Pittsburgh, PA

Graduate

1997-2000 Slippery Rock University Doctorate Physical Therapy
Slippery Rock, PA

Post-Graduate

2009-2011 University of Pittsburgh Master's Certificate Clinical Research
Clinical and Translational
Science Institute,
Institute for Clinical Research
Pittsburgh, PA

2009 – 2011 University of Pittsburgh Post-Doctorate NIH T32 Fellowship
Physical Medicine and Rehab
National Institute of Child
Health and Human Development
Pittsburgh, PA

APPOINTMENTS AND POSITIONS

Academic

2021 –present Duquesne University Tenure Stream Faculty
Physical Therapy
Pittsburgh, PA

2011-2021 University of Pittsburgh Assistant Professor
Rehabilitation Science and Technology
Pittsburgh, PA

Clinical

2000-2002	The Children's Institute Pittsburgh, PA	Physical Therapist
2001-2003	Veterans Affairs Pittsburgh Healthcare System Pittsburgh, PA	Adjunct Clinical Instructor Part-Time
2004-2007	The Early Learning Institute Pittsburgh, PA	Physical Therapist Part-Time
2002-2011	Western Pennsylvania School for Blind Children Pittsburgh, PA	Physical Therapist
2011-2022	University of Pittsburgh Medical Center Center for Assistive Technology Pittsburgh, PA	Physical Therapist Clinical Instructor

CERTIFICATION AND LICENSURE

Physical Therapy Licensure

Physical Therapist Commonwealth of Pennsylvania Department of State Bureau of Professional and Occupational Affairs	PT013725L
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Specialty Certification

Assistive Technology Provider (ATP) Rehabilitation Engineering Society of North America	2010-present
American Physical Therapy Association Credentialed Clinical Instructor	2001

MEMBERSHIPS IN PROFESSIONAL AND SCIENTIFIC SOCIETIES

Member	Pennsylvania Physical Therapy Association	1997-present
Member	American Physical Therapy Association	1997-present
Member	Pepper Junior Scholars Working Group Claude D. Pepper Older Americans Independence Center University of Pittsburgh	2010-2015
Co-Chair	Pediatric Special Interest Group (elected position) Pennsylvania Physical Therapy Association	2012-2015
Member	Rehabilitation Engineering Society of North America	2011- present
Member	Rehabilitation Engineering Society of North America Inclusive Fitness Committee	2015-2019
Vice-Chair	Rehabilitation Engineering Society of North America Inclusive Fitness Committee	2020-present

AWARDS FOR REFEREED SCIENTIFIC PAPERS/POSTERS

First Place	Poster. Patterson C, Crytzer TM. Development of <i>Wheel Learn Healthy Lifestyle Behavior Program Utilizing Social Cognitive Behavioral Theory</i> REU/ASPIRE summer internship program contest <i>University of Pittsburgh, Pittsburgh, PA</i>	2020
First Place	Poster. Crytzer TM, Dicianno BE, Cheng Y. <i>Pulmonary Function of Adolescents and Adults with Spina Bifida</i> Rehabilitation Institute Research Day, University of Pittsburgh, Pittsburgh, PA	2013
Honorable Mention	Paper. Spina Bifida Research Award, significant contribution to the literature at the 2 nd World Congress on Spina Bifida Research and Care, Las Vegas, NV	2012
Honorable Mention	Poster. Crytzer TM, Dicianno BE, Niyonkuru, C. <i>Exercise Capacity of Adults with Spina Bifida</i> Rehabilitation Institute for Research Day University of Pittsburgh School of Medicine Pittsburgh, PA	2011

PUBLICATIONS

Refereed Articles

**Indicates student mentorship*

1. Benjamin, N. L., McKernan, G., Izzo, S., Crytzer, T. M., Clayton, G. H., Wilson, P. E., ... & Dicianno, B. E. Factors Associated with Ambulation and Transfer Ability: A Study from the National Spina Bifida Patient Registry. *American Journal of Physical Medicine & Rehabilitation*, 2022 101(7), 652-658.
2. Greenhalgh, M.,* Blaauw, E. R., **Crytzer, T.**, Deepak, N., Grindle, G. G., Koontz, A. M., & Cooper, R. A. Comparison of trunk mechanics and spatiotemporal outcomes in caregivers using a robotic assisted transfer device and a mobile floor lift. *The Journal of Spinal Cord Medicine*, 2021 Sep 10;1-8. (PMID: 34505828)
3. Kulich HR, Wei L, **Crytzer TM**, Cooper RA, Koontz AM. Preliminary evaluation of an automated robotic transfer assist device in the home setting. *Disability and Rehabilitation: Assistive Technology*. 2021 Jan 22:1-8.
4. Koontz A, Wei L, **Crytzer TM**. Influence of Direction and Surface Type on Independent Wheelchair Transfer Technique (the "Work"). *American Journal of Physical Medicine & Rehabilitation* (In Review)
5. Koontz AM, Garfunkel CE, **Crytzer TM**, Anthony SJ, Nindl BC. Feasibility, acceptability, and preliminary efficacy of a handcycling high-intensity interval training program for individuals with spinal cord injury. *Spinal cord*. 2021 Jan;59(1):34-43.

6. Davis, W.A., Zigler, C.K., **Crytzer, T.M.**, Izzo, S., Houtrow, A.J. and Dicianno, B.E., 2020. Factors Associated With Ambulation in Myelomeningocele: A Longitudinal Study From the National Spina Bifida Patient Registry. *American Journal of Physical Medicine & Rehabilitation*, 99(7), pp.586-594. (PMID: 32209832)
7. McKernan, G., Izzo, S., **Crytzer, T.M.**, Houtrow, A.J. and Dicianno, B.E., 2020. Relationship Between Motor Level and Wheelchair Transfer Ability in Spina Bifida: A Study From the National Spina Bifida Patient Registry. *Archives of Physical Medicine and Rehabilitation*, 101(11), pp.1953-1960. (PMID: 32682935)
8. Kryger MA, **Crytzer TM**, Fairman A, Quinby EJ, Karavolis M, Pramana G, Setiawan IMA, McKernan GP, Parmanto B, Dicianno BE. The Effect of the Interactive Mobile Health and Rehabilitation System on Health and Psychosocial Outcomes in Spinal Cord Injury: Randomized Controlled Trial. Journal of Medical Internet Research. 2019 Aug 28;21(8):e14305. (PMID: 31464189)
9. Greenhalgh M,* Landis JM, Brown J, Kulich H, Bass S, Alqahtani S, Deepak N, **Crytzer TM**, Grindle GG, Koontz AM, Cooper RA. Assessment of Usability and Task Load Demand Using a Robot-Assisted Transfer Device Compared with a Hoyer Advance for Dependent Wheelchair Transfers. American Journal of Physical Medicine & Rehabilitation. 2019 Aug 1;98(8):729-734. (PMID: 31318755)
10. Hsin-Yi Tanya Liu, Rui-Min Chia, I Made Agus Setiawan, **Crytzer, TM** and Ding, Dan (2018): Development of "My Wheelchair Guide" app: a qualitative study, Disability and Rehabilitation: Assistive Technology, 2019 14 (8): 839-848. (PMID: 30451540)
11. Cooper RA, Tuakli-Wosornu YA, Henderson GV, Quinby E, Dicianno BE, Tsang K,* Ding D, Cooper R, **Crytzer TM**, Koontz AM, Rice I, Bleakney AW, Physical Medicine and Rehabilitation Clinics of North America, pp. 347-369, Vol. 29, No. 2, May 2018. (PMID: 29627093)
12. **Crytzer TM**, Keramati M,* Anthony S, Cheng Y,* Robertson RJ, Dicianno B. Exercise Prescription Using a Group Normalized Rating of Perceived Exertion in Adolescents and Adults with Spina Bifida. Physical Medicine and Rehabilitation. 2018 Feb 3 (Epub ahead of print). (PMID: 29408563)
13. **Crytzer TM**, Cheng YT,* Bryner MJ, Wilson III R, Scirba FC, Dicianno BE. Impact of Neurological Level and Spinal Curvature on Pulmonary Function in Adults with Spina Bifida. Journal of Pediatric Rehabilitation Medicine. 2018;11(4):243-254. (PMID: 300741703)
14. **Crytzer TM**, Cooper R, Jerome G, Koontz A. Identifying Research Needs for Wheelchair Transfers in the Built Environment. Disability and Rehabilitation: Assistive Technology, 2017; Feb; 12(2):121-127. (PMID: 25986519)
15. Tsang K, * Hiremath SV, **Crytzer TM**, Dicianno BE, Ding D. Validity of Activity Monitors in Wheelchair Users: A Systematic Review. Journal of Rehabilitation Research and Development, 2016; 53(6):641-658. (PMID: 27997674)
16. **Crytzer TM**, Hong E, Dicianno BE, Pearlman J, Schmeler M, Cooper RA. Identifying Characteristic Back Shapes from Anatomical Scans of Wheelchair Users to Improve

Seating Design. Medical Engineering and Physics, 2016 Sep; 38(9):999-1007. Epub 2016 Jul 15. (PMID: 27426985)

17. **Crytzer TM**, Dicianno BE, Robertson RJ, Cheng Y.* Validity of a Wheelchair Rating of Perceived Exertion Scale for Individuals with SB (WHEEL scale) during Arm Cycle Ergometry Exercise Testing. Perceptual and Motor Skills. 2015 Feb; 120(1):304-22. Epub 2015 Feb 4. (PMID 25650508)
18. Dicianno, BE, Karmarkar, A, Houtrow, A, **Crytzer, TM**, Cushmanick, KM, McCoy, A,* Wilson, P, Chinarian, J, Neufeld, J, Smith, K, Collins, DM. Factors Associated with Mobility Outcomes in a National Spina Bifida. American Journal of Physical Medicine & Rehabilitation, 2015 Dec 94(12), 1015–1025. (PMID: 26488146)
19. Dicianno BE, Parmanto B, Fairman AD, **Crytzer TM**, Yu DX, Pramana G, Coughenour D, Petrazzi AA. Physical Therapy. 2015 Mar; 95(3):397-405. (PMID: 24925075)
20. **Crytzer TM**, Dicianno BE, Kapoor R.* Physical Activity, Exercise and Health Related Measures of Fitness in Adults with Spina Bifida: A Review of the Literature. Physical Medicine and Rehabilitation 2013 Dec 5(12): 1051-1062. (PMID: 24332229).
21. **Crytzer TM**, Dicianno BE, Fairman A. Effectiveness of an Upper Extremity Exercise Device and Text Message Reminders to Exercise in Adults with Spina Bifida. Assistive Technology, 2013 winter 25(4): 181-193. (PMID: 24620701)
22. Schreiber J, Marchetti G, **Crytzer T**. The Implementation of a Fitness Program for Children with Disabilities: A Clinical Case Report, Pediatric Physical Therapy, 2004 fall; 16(3): 173-179. (PMID: 17057545)

Refereed Abstracts and Conference Proceedings

1. Benjamin NL, McKernan G, Izzo S, **Crytzer T**, Clayton G, Wilson P, Houtrow A, Dicianno B. Factors Associated with Ambulatory and Transfer Ability: A Study from the National Spina Bifida Patient Registry, World Congress and Annual Meeting of the Association of Academic Physiatrists." American Journal of Physical Medicine & Rehabilitation 99, no. 3 (2020)
2. Koontz AM, Bass SR, **Crytzer TM**. Feasibility and Effectiveness of a 12-week Upper Limb Vibration Exercise Training Program for Spinal Cord Injury, Paralyzed Veterans of America, 8/16/2019
3. Bass S, **Crytzer T**, Koontz, A. (2019). Acute Effects of Upper Limb Vibration Exercise on Physiological Measures for Wheelchair Users: 1353: American Congress of Rehabilitation Medicine 66th Annual Meeting. Board# 115 May 30 9: 30 AM-11: 00 AM. Medicine & Science in Sports & Exercise, 51(6), 359.
4. Koontz, A., Bass, S., Dighriri, A., & **Crytzer, T**. (2019). Feasibility of a 6-week Handcycling High Intensity Interval Training Program for Spinal Cord Injury: 693: American Congress of Rehabilitation Medicine 66th Annual Meeting. Board# 2 May 29 3: 15 PM-5: 15 PM. Medicine & Science in Sports & Exercise, 51(6), 166.

5. Bass S, **Crytzer T**, Koontz AM. Feasibility of an Upper Extremity Vibration Training Program, International Seating Symposium, Pittsburgh, PA, 2/20-2/22/2019
6. Davis WA, Zigler C, **Crytzer T**, Izzo S, Houtrow A, Dicianno B. Factors Associated with Ambulation in Myelomeningocele: A Longitudinal Study from the National Spina Bifida Patient Registry, AAP Conference, San Juan, Puerto Rico, 2/20/2019
7. **Crytzer TM**, Robertson, RJ, Cheng Y,* Dicianno BE. Validity of a Wheelchair Perceived Exertion Scale (WHEEL Scale) for Arm Ergometry Exercise in People with Spina Bifida, Spina Bifida World Congress, San Diego, CA, 3/18/2017
8. **Crytzer TM**, Robertson, RJ, Keramati M,* Cheng Y,* Dicianno BE. Exercise Prescription using a Group Normalized Rating of Perceived Exertion in Adolescents and Adults with Spina Bifida, Spina Bifida World Congress, San Diego, CA, 3/18/2017
9. **Crytzer TM**, Dicianno BE, Cheng Y,* Bryner MJ, Wilson R, Scieurba, FC. Impact of Neurological Level and Spinal Curvature on Pulmonary Function in Spina Bifida, Spina Bifida World Congress, San Diego, CA, 3/17/2017
10. **Crytzer TM**, Dicianno BE, Cheng Y,* Bryner MJ, Wilson R, Scieurba, FC. Impact of Level Lesion and Spinal Curvature on Pulmonary Function in Spina Bifida, American Thoracic Society Conference, 5/17/2016
11. Keramati M,* **Crytzer TM**, Dicianno BE, Robertson RJ. Group Normalized Rating of Perceived Exertion in Adolescents and Adults with Spina Bifida, 12th Annual UPMC Rehabilitation Institute Day, 5/18/2016.
12. Karavolis M, Mueller E, Fairman AD, **Crytzer TM**, Dicianno BE. Undergraduate Research Symposium, Duquesne University poster and award for Telewellness Support Systems for SCI, 4/2015.
13. Liu H, **Crytzer TM**, Kelleher A, Wolff J, Ding D. Consumer Experience in Wheelchair Service Delivery Process: Preliminary Findings from an Interview Study, International Seating Symposium, Nashville, TN, 3/1/2015
14. **Crytzer TM**, Dicianno BE, Robertson RJ, Cheng, Y.* Validity of a Wheelchair Perceived Exertion Scale in People with Spina Bifida, International Seating Symposium, Nashville, TN, 2/27/2015
15. Hickey C, Dicianno B, Bobish T, Cooper R, **Crytzer TM**, Kelleher A, Schmeler M. Procurement of Power Wheelchair Seat Elevators and Association with Mobility and Transfers: A quality improvement project. Abstracts of Scientific Papers and Posters Presented at the Annual Meeting of the Association of Academic Physiatrists, Association of Academic Physiatrists, American Journal of Physical Medicine and Rehabilitation 2015; 94(3).
16. Cheng Y,* **Crytzer TM**, Dicianno BE. Use of Rating of Perceived Exertion Scale for Arm Cycle Ergometry Among People with Spina Bifida, Rehabilitation Engineering and Assistive Technology Society of North America Annual Conference, 6/11-6/15/2014.

17. Cushman K, Houtrow AJ, **Crytzer TM**, Wilson P, Chinarian J, Karmarkar A, Collins D, Dicianno BE. Factors Contributing to Functional Ambulatory Status in Individuals with Spina Bifida. AAP Annual Meeting Scientific Papers and Posters, American Journal of Physical Medicine & Rehabilitation: March 2014 - Volume 93 - Issue 3 - p a1–a97.
18. Jerome GM, Koontz AM, **Crytzer TM**, Cooper RA. Identifying Research Needs for Wheelchair Transfers in the Built Environment, Proceedings of the Rehabilitation Engineering and Assistive Technology Society of North America Conference, Seattle, WA, 6/20-6/24/2013
19. **Crytzer TM**, Dicianno BE, Fairman AD. Exercise Capacity in Adults with Spina Bifida, Second World Congress on Spina Bifida Research and Care, 3/11-3/14/2012
20. **Crytzer TM**. Cardiopulmonary Fitness Limitations in Spina Bifida, Second World Congress on Spina Bifida Research and Care, 3/11-3/14/2012.
21. **Crytzer T**, Smith K, Dicianno BE, Fairman AF. Effects of an Upper Extremity Exercise Device and Text Message Reminders to Exercise on Individuals with Spina Bifida. Leading the way to the future. The 37th Spina Bifida Association National Conference, Cincinnati, OH, 6/27-6/30/2010
22. Michaels M, **Crytzer T**. Reliability of Respiratory Rate and Chest Wall Excursion in Children with Limited Mobility. Poster Presentation. American Physical Therapy Association National Meeting, Baltimore, MD, 6/12/2009
23. Schreiber J, Marchetti G, **Crytzer T**. The Implementation of a Fitness Program for Children with Disabilities: A Clinical Case Report. American Physical Therapy Association, Combined Sections Meeting, Poster Presentation, Tampa, FL, 2/13/2003

Non-Refereed Journal Articles and Books

1. Rice I, Greenbaum A,* **Crytzer T**. *Racing SmartWheel*, PN Magazine, pp. 12-13, Vol. 68, No. 3, March 2014 (PN Online: http://pvamag.com/pn/article/6099/racing_smartwheel)
2. Michaels MB, **Crytzer TM**. (2011) Commentary on “The Effects of Positioning on Respiratory Measures in Individuals with Cerebral Palsy and Severe Scoliosis” Pediatric Physical Therapy, 23 (2):170.
3. **Crytzer T**. Book Review on Assistive Technology for Young Children: Creating Inclusive Learning Environments, by Kathleen Curry Sadao, EdD, and Nancy B. Robinson, PhD, CCC-SLP. Assistive Technology. 2011;23(3):184-185.
4. Cooper, R; Cooper, RA; Toro Hernandez, ML; **Crytzer, TM**; Bobish, T; Mankowski, R Mankowski, J; Coltellaro, J; McCormick, B; Chaves Ferretti, E; Aparecida Ferreira de Mello, M; Upadhyay, N. *ISCoS Textbook on Comprehensive Management of Spinal Cord Injuries*, Harvinder Singh Chhandra, *Editor*, Wolters Kluwer (India), New Delhi. Assistive Technology: An International Approach to the Comprehensive Management (Chapter 38), pp. 594-612, 2017.

RESEARCH

Reviewer for Refereed Journals

Archives of Physical Medicine and Rehabilitation	2011 – present
• Recognized for service as a “ Consistent Reviewer ”	Fall 2015
• Recognized as an “ Elite Reviewer ”	Winter 2020
○ <i>“Elite status designation reflects the number, timeliness, and quality of your reviews for the Archives in 2019 as judged by the editors. Your selection reflects critical thinking and effective participation in the process of peer review. After examining the performance of reviewers, we identified approximately 2 percent (49 people out of 2,391 reviewers who submitted 1,359 reviews in 2019) judged to be deserving of this recognition.”</i>	

Assistive Technology Journal	2011 – 2018
American Journal of Physical Medicine and Rehabilitation	2012 – 2017
Journal of Pediatric Rehabilitation Medicine	2013 – 2018
Journal of Rehabilitation Research & Development	2013 – 2016
Transactions on Neural Systems & Rehabilitation Engineering	2016 – 2018
Journal of Spinal Cord Injury	2016 – present
Adaptive Physical Activity Quarterly	2017 – 2019
Journal of Spinal Cord Medicine	2019 – present

Peer Grant Reviewer

In-House reviewer	Veterans Affairs Pittsburgh Healthcare System Human Engineering Research Laboratories	2010 - present
Reviewer	Veterans Affairs Pittsburgh Health Care System R.E.U. / ASPIRE student presentations	2018
External Reviewer	University of Pittsburgh Office of Research	2019-present
External Reviewer	Children’s Hospital of Pittsburgh Office of Research	2019

RESEARCH SUPPORT

Current Research Support

WHEEL-LEARN: THE DEVELOPMENT OF AN INTERNET BASED HEALTHY LIFESTYLE BEHAVIOR INTERVENTION IN PEOPLE WITH PHYSICAL, COGNITIVE AND SENSORY DISABILITIES

HEALTHY LIFESTYLE INSTITUTE (CRYTZER) 2/15/2020-4/1/2022
University of Pittsburgh \$20,000

Role: PI. Responsible for full conduct of study. Physical and psychosocial barriers place people with disabilities at greater risk for chronic disease risk than those without disabilities. Lifestyle management is a key factor in behavior change for preventing chronic disease risk. Standard Behavioral Therapy is a proven method for tackling barriers to a healthy lifestyle. There are limited options for usable, accessible, and low-cost, evidence-based behavioral lifestyle programs for disability populations. A user centered design approach is proposed to (1) develop WHEEL-LEARN, a web-based behavioral lifestyle program and (2) test the usability and accessibility the product. It will be piloted in a diverse cohort of people with sensory, cognitive, and physical disabilities.

Prior Research Support

BODY COMPOSITION AND ENERGY EXPENDITURE IN YOUTH WITH SPINA BIFIDA

(SB)R01 HD096085-01-A1 (Michele Polfus) 01/01/19 – 12/31/23 2.4 Calendar Months
University of Wisconsin (NIH) \$2,500,000

Role: Site PI (Crytzer). As site PI I am responsible for the full conduct of the study, including writing IRB proposal and modifications, recruitment, consenting, communication with families throughout the study, training of clinical coordinators, staff, students, and RN's at Children's Hospital research center; maintenance of records, data collection, recording, analysis and dissemination, conduct of data management meetings and participation in multi-site research meetings. The study aims are: (1). Use multiple measures of body composition and/or height to develop a clinically usable algorithm that accurately models body fat% and categorizes weight status in youth with SB, and (2). Using doubly labeled water, calculate total daily energy expenditure and develop an algorithm to predict energy requirements of the sample.

WHEEL-LEARN: THE DEVELOPMENT OF AN INTERNET BASED HEALTHY LIFESTYLE BEHAVIOR INTERVENTION IN PEOPLE WITH PHYSICAL, COGNITIVE AND SENSORY DISABILITIES

HEALTHY LIFESTYLE INSTITUTE (CRYTZER) 2/15/2020-2/14/2021
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mWHEELFIT DEVELOPMENT AND FEASIBILITY 546511 (DING/CRYTZER)

Craig H. Neilsen Foundation

09/01/18 – 6/30/20 \$272,031

Role: Co-PI. Responsible for overseeing the production of all materials (e.g. written, video, app) that demonstrate exercises for people with disabilities, primarily wheelchair users and testing and provide input to PT and software engineers and app designed for iterative refinement of app. Provide mentoring and oversight to students and staff. Recruit and retain participants. Data collection, analysis, and dissemination. The goals of this project are to develop, pilot test, and refine a mHealth application mWheelActive for reducing sedentary behaviors and increasing physical activity (PA) among people with spinal cord injury (SCI) & to evaluate the feasibility, acceptability, and impact of mWheelActive in a 10-week pilot trial

SELF-MANAGEMENT ASSISTANCE THROUGH TECHNOLOGY (SMART) – VIRTUAL COACHES FOR WHEELCHAIR USERS.

90DP0056-04-00 (DING)

4/1/15 - 9/29/20

1.20 Calendar Months

Administration for Community Living (ACL) \$477,314

Role: Co-I. I serve as content expert and coordinate and oversee video production of manual and power wheelchair skills educational materials (e.g., videos, app content, written materials) for wheelchair users and therapists. I organize and conduct focus groups, analyze and disseminate data, and provide oversight of students and staff. This project is a 5-year development project that focuses on educating an important but often neglected group – wheelchair users. The project aims to improve health and functional outcomes of wheelchair users by increasing their knowledge of appropriate wheelchair use and their role in the wheelchair service delivery process and providing supportive technologies to assist them in leading a healthy lifestyle.

COMP B-NATIONAL SPINA BIFIDA PATIENT REGISTRY AT THE UNIVERSITY OF**PITTSBURGH.5U01 DD001078-04 (DICIANNO) 9/1/19 - 8/31/24 0.24 Calendar Months**

Centers for Disease Control and Prevention \$41,145

Role: Co-I. I am responsible for training all staff and students and providing oversight on data collection, analysis and dissemination. Leadership role at annual registry meeting with the Centers for Disease Control and the Spina Bifida Association with respect to annual improvement in the registry. The objective of this proposal is to continue participation of the University of Pittsburgh in the National Spina Bifida patient Registry. The University of Pittsburgh has been a funded registry site since 2011. We propose a research subproject within this award addressing three aims: 1) Describe more fully the neurological and functional classification of individuals with spina bifida, 2) Determine which additional variables contribute significantly to ambulatory and transfer ability, and 3) Develop and validate a “Spina Bifida Impairment Scale” that clinicians can use to accurately quantify motor and sensory deficits in individuals with spina bifida.

RESEARCH AND ENGINEERING CENTER (RERC) ON INFORMATION AND COMMUNICATION TECHNOLOGIES (ICT) FROM CLOUD TO SMARTPHONE: ACCESSIBLE AND EMPOWERING ICT

90RE5018-04 (PARMANTO)

4/1/15 - 9/29/21 (NCE)

1.20 Calendar Months

Administration for Community Living (ACL) \$4,747,300

Wellness Coordinator. Via a web-based clinician portal linked to the iMHere 2.0 smartphone app, I coordinate the care of participants with spina bifida, cerebral palsy and spinal cord injury with physiatrist, Dr. Brad Dicianno, to address/prevent secondary conditions. I participate in bi-weekly data management team meetings and provide input to software engineers for iterative refinement of app and usability testing. The RERC on ICT Access establishes an engineering

center with the missions to mitigate barriers to ICT access for persons with disabilities and to harness the power of on Information and Communication Technologies to improve health and function, social participation, and employment among individuals with disabilities. A series of research projects are proposed. Dr. Dicianno is the Research Director and will lead a subproject that evaluates the efficacy and accessibility of a telerehabilitation system for adults and adolescents with cerebral palsy and spinal cord injury with special emphasis on targeted enrollment of minority populations.

DEVELOPMENT OF THE CAREGIVER ASSISTED TRANSFER TECHNIQUE (CATT)

INSTRUMENT

3173 (KOONTZ) 1/1/20 - 12/31/21 0.6 Calendar Months
Paralyzed Veterans of America \$69,775

Role: Co-I. I am responsible for providing content expertise, recruitment and analysis, dissemination of findings. A new instrument, called the Caregiver Assisted Transfer Technique Instrument (CATT) has been developed to provide an objective way to evaluate proper assisted transfer techniques. The goal of this study is to determine face and content validity of the CATT to evaluate assisted transfer technique that is directed towards informal (i.e., non-paid) caregivers providing care to individuals with spinal cord injury/dysfunction (SCI/D).

HOPE THROUGH HOOPS!

STATE OF PENNSYLVANIA RESOURCE GRANT (SIKORA/CRYZTER) \$23,000
2019-2020

Role: I wrote this grant in combination with John Sikora, Executive Director, HOPE Network to obtain wheelchair basketball chairs for a new Juniors program for children with paralysis to learn to play wheelchair basketball. I assist with conduct of the grant including data collection including 1). Attendance (weekly), Body fat analysis with skin fold calipers (monthly), Strength assessed by bench press or arm curl (monthly), Quickness assessed by side-to-side sprint at free throw lane (monthly) and Speed assessed by 10-20-10 sprint (monthly). I assist Coach Sikora with teaching/coaching wheelchair basketball skills at weekly practices and scrimmages, assist with participant and volunteer recruitment and training. I collect, record and analyze data.

EFFECTIVENESS OF AN UPPER EXTREMITY EXERCISE DEVICE AND TEXT MESSAGING IN ADULTS WITH SPINA BIFIDA,

T32HD049307 (Mentor:BRAD E. DICIANNO, MD) 7/1/2009 – 6/30/2011
Role: Post-Doctoral Fellow/Co-I \$57,052

NIH T32 National Institute of Child Health and Human Development Training Rehabilitation Clinicians for Research Careers. Participants (n=19) completed a quasi-experimental trial using cross-over design involving 19 adults with spina bifida who participated in exercise on either a Game Cycle or Saratoga Arm ergometer and received text message reminders to exercise.

PULMONARY FUNCTION IN ADOLESCENTS AND ADULTS WITH SPINA BIFIDA

National Spina Bifid Association/Ashley Rose Foundation 7/1/2012 – 6/30/2013
2011 Spina Bifida Association Young Investigator Award (CRYTZER) \$37,500

Role: PI: Crytzer. Coordinated all aspects of the study: recruitment, coordination of conduct of exercise testing and pulmonary function tests with Endocrinology and Metabolism laboratories and COPD Emphysema labs respectively at University of Pittsburgh, collected data, trained student and staff, analyzed data, provided oversight to students and staff, prepared manuscript, disseminated results in form of published manuscripts and presentations.

MOBILITY AND FUNCTIONAL OUTCOMES FROM A NATIONAL SPINA BIFIDA PATIENT REGISTRY

10/1/2012 – 9/30/2013

Center for Rehab. Research Using Large Databases (DICIANNO) \$27,778

Role: Co-I. Trained staff in data collection. Assisted with data coding and analysis of mobility outcomes, and dissemination of findings at Centers for Disease Control Meeting. Goal was to evaluate the predictors of mobility in people with spina bifida. We completed manuscript on mobility outcomes in individuals with spina bifida.

RESEARCH ENGINEERING RESEARCH CENTER ON SPINAL CORD INJURY (BONINGER)

H133E070024

\$667,589

10/1/07-9/30/14

US Department of Education/*National Institute on Disability and Rehabilitation Research*

Role: Co-I Led focus group and completed qualitative data analysis, and manuscript. Goal was to determine a new research agenda for transfers in the built environment related to recreational environments. I completed first author manuscript for this project that was published in *Disability and Rehabilitation: Assistive Technology*.

“HOPE, YOU CAN RALLY!”

Christopher and Dana Reeves Foundation (CRYTZER/SIKORA) \$10,000 2014-2016

Role: Wrote grant in combination with John Sikora. Obtained handcycles for HOPE Network to grow their community handcycling program in southwestern Pennsylvania and the surrounding area to improve health and fitness of people with disabilities, with a focus on those with spinal cord injury. Assisted in data collection.

TELEWELLNESS SUPPORT SYSTEMS FOR SPINAL CORD INJURY

288995 Craig H. Neilsen Foundation (DICIANNO) \$28,507

04/01/15 – 04/30/16

Role: Co-I. In a randomized clinical trial, the group who uses iMHere smartphone app will have improved psychosocial and medical outcomes compared to the standard of care only group. We also will carry out a usability study to determine what modifications need to be made to the system for those with higher levels of impairment who have difficulty accessing a smartphone even with accessibility functions.

EFFECT OF VIBRATION EXERCISE ON UPPER LIMB STRENGTH, FUNCTION, AND PAIN

Clinical Trials Award #3064 (KOONTZ)

04/01/16 – 03/31/18

PVA Research Foundation

\$149,781

Role: Co-I. The aims of this study are to evaluate the effectiveness of a novel vibration exercise program over traditional resistance training for upper limb strengthening in people with paraplegia. Twenty-four subjects with paraplegia will be recruited to participate in a pilot randomized control trial to evaluate the feasibility and effectiveness of a supervised home-based high-frequency vibration exercise program on improving upper extremity strength, wheelchair propulsion, transfer ability and shoulder pain.

TECHNOLOGY APPLICATIONS IN PEOPLE WITH COMPLEX DISABILITIES

National Student Loan Repayment Program (CRYTZER)

10/2016 – 10/2018

National Institutes of Health

\$75,000

I obtained this competitive grant that provided funding to assist in student loan repayment for scientists who are involved in medical research for at least 50% of their full-time effort.

CENTER FOR EXCELLENCE IN WHEELCHAIRS AND ASSOCIATED REHABILITATION ENGINEERING

Contract # VA240-13-C-0057 (COOPER)

7/1/15-6/30/19

Department of Veterans Affairs

\$900,000

The mission of the center is to continuously improve the mobility and function of people with disabilities through advanced engineering in clinical research and medical rehabilitation where all have unencumbered mobility and function so that they can fully participate in and contribute to society. Dr. Crytzer devoted 10% effort to the Veterans Affairs Pittsburgh Healthcare System Center of Excellence as Clinical Coordinator for the contract period. Dr. Crytzer is uniquely qualified to meet the objectives stated below. She has a doctorate degree in PT, is a certified Assistive Technology Provider and completed T32 post-doctoral training and obtained a Certificate in Clinical Research. She has a background in Assistive Technology and Rehabilitation Engineering. She will help with study recruitment, development of clinical protocols, monitoring, study implementation, and data management.

FEASIBILITY AND ACCEPTABILITY OF SIX-WEEKS OF HIGH INTENSITY INTERVAL TRAINING IN WHEELCHAIR USERS WITH SPINAL CORD INJURY

5P2CHD086851-03(KOONTZ)

07/01/17 – 06/30/19

University of Alabama at Birmingham (NIH)

\$60,344

Role: Co-I. The overall objectives of this pilot study (pre-clinical trial) are to explore the feasibility and acceptability of a 6-week high intensity interval training program for wheelchair users with spinal cord injury or disease and low fitness.

DEVELOPMENT AND EVALUATION OF AN AUTOMATED TRANSFER TECHNOLOGY (KOONTZ)

R44HD085702

09/18/15 – 08/31/19

NextHealth Inc. (Prime: NIH)

\$303,888

Role: Co-I. The goal is to develop, prototype and test a new wheelchair as part of the AgileLife patient transfer system that would accommodate bariatric individuals over 250 lbs. and a tilt feature on the standard weight capacity under 250 lbs. and bariatric wheelchair. The new designs will be iteratively developed in collaboration with the University of Pittsburgh. Eight commercial ready prototypes will be built that meet the user, technical and manufacturing requirements established by expert panel review, wheelchair standards testing, and in-lab evaluations.

ASSESSING THE EFFECTIVENESS OF VIRTUAL REALITY (VR) FOR POWER WHEELCHAIR DRIVING TRAINING (DICIANNO)

17135

07/01/18 – 06/30/19

Promobilia Foundation

\$20,045

Role: Co-I. Participate in training, recruitment, testing, manuscript and presentation dissemination. The aims of this proposal are to evaluate the impact of a VR training system on power wheelchair driving performance and to obtain qualitative feedback from users on the design of the VR simulator to inform further software development. It is hypothesized that those receiving training with the VR system will have significant improvements in driving skill, as compared to baseline and greater improvements in driving skills as compared to a control group receiving equal amounts of in-person driving training.

COMP B-NATIONAL SPINA BIFIDA PATIENT REGISTRY AT THE UNIVERSITY OF PITTSBURGH

U01 DD001078 (DICIANNO)

9/1/14-8//31/2020

0.24 Calendar Months

Centers for Disease Control and Prevention \$41,145

Role: Co-I. Responsible for training all staff and students and providing oversight on data collection, analysis and dissemination. Leadership role at annual registry meeting with the Centers for Disease Control and the Spina Bifida Association with respect to annual improvement in the registry. The objective of this proposal is to continue participation of the

University of Pittsburgh in the National Spina Bifida patient Registry. The University of Pittsburgh has been a funded registry site since 2011. We propose a research subproject within this award addressing three aims: 1) Describe more fully the neurological and functional classification of individuals with spina bifida, 2) Determine which additional variables contribute significantly to ambulatory and transfer ability, and 3) Develop and validate a “Spina Bifida Impairment Scale” that clinicians can use to accurately quantify motor and sensory deficits in individuals with spina bifida.

PROFESSIONAL ACTIVITIES

TEACHING

Courses in Curriculum

Instructor	PHYTH 506 Exercise Physiology Science/Lab Duquesne University, Physical Therapy Doctoral Level: Year 4 Number of students: 38 Summer 2022
Instructor	PHYTH 543 Clinical Neurologic Science I Duquesne University, Physical Therapy Doctoral Level: Year 5 Number of students: 37 Spring 2022
Instructor	PHYT 605 Cardiovascular and Pulmonary Science/Lab Duquesne University, Physical Therapy Doctoral Level: Year 6 Number of students: 38 Fall 2021
Co-Instructor	PHYT 620 Clinical Neurologic Science III/Lab Duquesne University, Physical Therapy Doctoral Level: Year 6 Number of students: 38 Fall 2021
Teaching Assistant	2905 Cardiopulmonary Physical Therapy I University of Pittsburgh, Physical Therapy Instructor: Andrea Hergenroeder, PT, PhD, CCS Number of Students: 60 Level: Year 1 Doctoral level Fall 2020 and 4/12/2019
Teaching Assistant	2905 Cardiopulmonary Physical Therapy I University of Pittsburgh, Physical Therapy Department Pittsburgh, PA Instructor: Andrea Hergenroeder, PT, PhD, CCS

Number of Students: 60
Level: Year 1 Doctoral level
3/30/2018

Lecturer Environmental Adaption and Rehabilitation Technology
Duquesne University, Occupational Therapy Program
Pittsburgh, PA
Wheelchair Service Delivery/Adaptive Seating and Mobility
Instructors: Andrea Fairman, PhD, OTR/L & Jenny Wang, PhD
Number of Students: 40
Level: Year 2 Master's Level
1/22/2015 & 2/11/2016

Instructor HRS 2705 Rehabilitation Engineering and Assistive Technology
University of Pittsburgh, Pittsburgh, PA
Instructors: Rosi Cooper, MPT, ATP, Annmarie Kelleher, OTR/L,
ATP, Theresa Crytzer, PT, DPT, ATP
Number of Students: 34
Level: Year 1 Master's Level
1/2012 – 2014

Lecturer Evidence in Practice Mini-Lecture Series, Case
Presentation
Chatham University, Pittsburgh, PA.
Instructor: Joe Schreiber, PT, PhD
Number of Students: 45
Level: Year 2, Doctoral level
11/13/2009

Co-Instructor Pediatric (Elective) and Pediatric Physical Therapy
Slippery Rock University, Slippery Rock, PA
Instructor: Meg Michaels, PT, PhD, PCS
Number of Students: 53
Level: Year 3 Doctoral level
6/2009 - 2016

Teaching/Lab TA Pediatric Physical Therapy
Pediatrics Motor Development Laboratory
Slippery Rock University, Slippery Rock, PA
Instructor, Meg Michaels, PT, PhD, PCS
Number of Students 47
Level: Year 2 Doctoral
6/2005-6/2007

Lecturer *Management of Cardiopulmonary System
Dysfunction*, Chatham University, Pittsburgh, PA.
Instructor: Joe Schreiber, PT, PhD
Number of Students: 45
Level: Year 2 Doctoral level
11/4/2008, 5/30/2008 & 3/27/2009

Lecturer *Adaptive Equipment Lecture and Laboratory (8 hr. course)*
Slippery Rock University, Slippery Rock, PA
Instructor: Meg Michaels, PT, PhD, PCS
Number of Students: 53, 48
Level: Year 2 Doctoral level
7/13/2006 & 6/25/2007

Co-Instructor Life Cycle I (Pediatrics, 8 hr.course)
Cardiopulmonary lecture and lab
Slippery Rock University, Slippery Rock, PA
Instructor: Meg Michaels, PT, PhD, PCS
Number of Students 51
6/2004-2007

Continuing Education for Clinical Professionals

Teaching Assistant *If You Can't Breathe, You Can't Function*
Hunter College, New York, NY
Instructor: Mary Massery PT, DPT, DSc
Number of Students: 25
Level: Professional advanced
11/16-18/2018

Teaching Assistant *If You Can't Breathe, You Can't Function,*
Heinz Rehab Hospital, Wilkes-Barre, PA.
Instructor: Nechama Karman, PT, MS, PCS
Number of Students: 30
Level: Professional, advanced
12/1-12/3/2017

Teaching Assistant *If You Can't Breathe, You Can't Function*
York Hospital, York, PA
Instructor: Mary Massery, PT, DPT, DSc
Number of Students: 27
Level: Professional, advanced
Level: Year 2 Doctoral level
4/2012-14/2013

Teaching Assistant *If You Can't Breathe, You Can't Function.* Knoxville, TN
Instructor: Mary Massery, PT, DPT, DSc
Number of Students: 25
Level: Professional, advanced
8/24 - 8/27/2006

Other Teaching Roles

Instructor Introduction to Wheelchairs for R.E.U./ASPIRE interns 5/2014

- Provided overview of manual, power and power assist wheelchairs, wheelchair service delivery process and transfer training for summer students

Instructor	Introduction to Wheelchairs to Pitt Medical Students	3/2012
	<ul style="list-style-type: none"> • Provided overview of wheelchair service deliver and manual, power and power assist wheelchairs 	
Instructor	Investing Now “Hands-on-Science”	1/4/2012
	<ul style="list-style-type: none"> • Provided intro to wheelchair service delivery Process and all types of assistive technology (e.g., wheelchairs, walkers, standers) to high school students 	

Instructional Courses and Workshops

Local

1. **Crytzer TM.** PPTA Mini-Combined Sections. *Impact of Cardiopulmonary Function on Wheelchair Seating and Positioning* (Synchronous Virtual Presentation), 3/20/2021.
2. Allegretti A, Straatman J, Plummer T, Lowery A, **Crytzer TM**, Go Baby Go. 7-Hour Pre-Conference Instructional Course. International Seating Symposium, Pittsburgh, PA 3/19/2019
3. **Crytzer TM.** *Cardiopulmonary Function and Wheelchair Seating and Mobility.* 60-Minute Instructional Session. International Seating Symposium, Pittsburgh, 3/22/2018
4. **Crytzer TM.** *Pulmonary Function of Adolescents and Adults with Spina Bifida*, Presented at Principal Investigator/Coordinator meeting, Human Engineering Research Laboratories, Veterans Affairs Pittsburgh Healthcare System, Pittsburgh, PA 10/21/2013
5. **Crytzer TM.** *Options for Adaptive Exercise.* Multiple Sclerosis Support Group, Bakery Square, Rehabilitation Science and Technology, University of Pittsburgh, 4/22/2013
6. **Crytzer TM.** *Cardiopulmonary Assessment in 5 Minutes or Less*, Presented at Faculty/Staff in-service, Center for Assistive Technology, University of Pittsburgh Medical Center, Pittsburgh, PA 2/27/2013
7. **Crytzer TM**, Diurba, B. *Adaptive Equipment in Pediatrics*, School of Physical Therapy, Slippery Rock University, Slippery Rock, PA, 6/18/2012
8. **Crytzer TM.** *Case Study Using a Multisystem Impairment Evaluation; Postural Drainage: Manually Assisted Breathing Techniques*, OT/PT in-service, The Western Pennsylvania School for Blind Children, Pittsburgh, PA, 4/17/2009
9. **Crytzer TM.** *Positioning and Postural Drainage.* Para-educator workshop. The Western Pennsylvania School for Blind Children, Pittsburgh, PA, 4/3/2009
10. **Crytzer TM**, Garrett-Sikora S. *Occupational/Physical Therapy Collaboration.* Panel discussion. Chatham University, Pittsburgh, PA 11/18/2008
11. **Crytzer TM.** *Positioning, Postural Drainage and Manually Assisted Breathing Techniques.* Brown Bag Luncheon Series. The Western Pennsylvania School for Blind Children, Pittsburgh, PA, 10/15/08

12. **Crytzer TM**, Diurba B. *LIKO Lift Transfers with Students Returning to School Post Surgery*. Para-educator Variety Pack Training Workshops. The Western Pennsylvania School for Blind Children, Pittsburgh, PA, 3/13 and 3/14/2008
13. **Crytzer TM**, Garrett-Sikora S. *Occupational/Physical Therapy Collaboration*. Panel discussion. Chatham University, Pittsburgh, PA 11/14/2007
14. **Crytzer TM**. *What You Can Do in 2 Minutes or Less to Improve Breathing*. Brown Bag Luncheon Series. The Western Pennsylvania School for Blind Children, Pittsburgh, PA, 1/13/2006.
15. **Crytzer TM**, Garrett-Sikora S. *Occupational/Physical Therapy Collaboration*. Panel discussion. Chatham University, Pittsburgh, PA 11/29/2006
16. **Crytzer TM**. *Pediatric Respiration and Clinical Applications*. Brown Bag Luncheon Workshop. The Western Pennsylvania School for Blind Children, Pittsburgh, PA, 1/2005
17. **Crytzer TM**. *Respiratory Development and Issues in Pediatrics*. Act 48 after school in-service. The Western Pennsylvania School for Blind Children, Pittsburgh, PA, 3/3/2004
18. **Crytzer TM**. *Respiratory Development and Issues in Pediatrics*. Pediatric Study Group. The Western Pennsylvania School for Blind Children, Pittsburgh, PA, 5/30/2003

National

1. Liu H, **Crytzer TM**, Bennewith A, Wolff J, *Training and Education for Novice Wheelchair Users* (Instructional Course), International Seating Symposium, Nashville, TN, 3/3/2017
2. Liu H, **Crytzer TM**, Kelleher A, Wolff J, Ding D, *Development of a Smartphone App to Assist in Wheelchair Service Provision*, International Seating Symposium, Nashville, TN, 2/26-28/2015

International

1. **Crytzer TM**, Dobrich L. *Cardiopulmonary Function and Wheelchair Seating and Mobility*. 60-Minute Instructional Session. International Seating Symposium, Pittsburgh, 2/2022.
2. **Crytzer TM**. *The Impact of Wheelchair Seating and Mobility on Cardiopulmonary Function* (Instructional Course), International Seating Symposium, Vancouver, BC 3/6/2020

Invited Lectures

1. **Crytzer TM**. *Cardiopulmonary Function and Wheelchair Seating and Mobility* National Registry of Rehabilitation Technology Suppliers (NRRTS). Continuing Education Program. 1-hour course. 12/7/2021

2. **Crytzer TM.** *WHEEL-LEARN:Development of an Internet-based Healthy Lifestyle Behavior Intervention for People Physical, Cognitive and Sensory Disabilities.* 2nd Annual Healthy Lifestyle Institute Summit. University of Pittsburgh, Pittsburgh, PA 12/06/2019
3. **Crytzer TM,** Kelleher A, Everhart J, Hibbs, R. *Manual and power wheelchair evaluation and fitting.* UPMC Spinal Cord Injury Conference, University of Pittsburgh Medical Center, Mercy Hospital 5/14/2016
4. **Crytzer TM,** Bobish T. *Pediatric Wheelchair Seating and Mobility,* Pennsylvania Physical Therapy Association Meeting, Seven Springs, PA 10/2015
5. **Crytzer TM,** Dicianno BE, Kelly, L. *Research and Advances in Spina Bifida Care from Birth through Adulthood: Health Related Fitness in Individuals with Spina Bifida,* Pennsylvania Physical Therapy Association Annual Conference, 1-Day Instructional Course, Seven Springs, PA, 10/24/2014
6. **Crytzer TM.** *Wheelchair Service Delivery,* FIT-IN Conference. Developmental Pediatrics at SUNY Upstate Medical, Syracuse University, Syracuse, NY, 10/2014 (Moderator: Nienke Dosa, MD)
7. Trolio R, **Crytzer TM.** *Improving Seated Function by Controlling the Paralyzed Trunk with Electrical Stimulation,* American Spinal Injury Annual Conference, Denver, CO, 4/19/2012
8. **Crytzer, TM.** *Adaptive Sports and Exercise Equipment.* American Academy of Physical Medicine and Rehabilitation Annual Assembly, Atlanta, GA 11/17/2012 to 11/18/2012
9. **Crytzer, TM.** Options for Adaptive Exercise. Spina Bifida Association National Conference, Anaheim, CA, 6/27/2011.
10. **Crytzer, TM.** Bullying in the Community. Spina Bifida Association National Conference, Anaheim, CA, 6/27/2011
11. **Crytzer, TM.** Invited Keynote Speaker for Slippery Rock University Graduate School of Physical Therapy Convocation, Slippery Rock, PA, 8/2009

MENTORSHIP OF STUDENTS

High School Co-op Students

Summer 2017-18 Christina Patterson

Vincentian Academy

Mentor during her summer research opportunity where she assisted with data entry of data from National Veteran's Wheelchair games, development of a literature review paper, grant writing and conduct of research

She is a sophomore at Massachusetts Institute of Technology, Mechanical Engineering Program

2019-present Scottie Patterson
North Hills High School Student
Mentor during summer research opportunity and recently obtain a grant from the Healthy Lifestyle Institute. He is a consultant on the WHEEL-LEARN project and is assisting with the development of a lifestyle intervention for people with disabilities

Undergraduate Students

2019-2020 Yousif Shwetar, BS
University of Pittsburgh, Bioengineering
Committee Member for BS Thesis, "Using Wearable Devices to Measure Physical Activity in Manual Wheelchair Users with Spinal Cord Injuries"

2019-2020 Cassie Toolan, BS
University of Pittsburgh, Health and Information Management
Supervisor for Level 2 Health and Information Management placement involving research, data collection, data analysis, web development, and paper and power point presentations.
She is working as a Clinical Practice Data Analyst at the University of Illinois at Chicago Hospital Pharmacy and obtaining Master's Degree in Health Informatics

2018-2019 Lakshmi Ilango, BS
University of Pittsburgh, Health and Information Management
Supervisor for Level 1 (2018) and Level 2 (2019) Health and Information Management placements involving research, data collection, analysis, manuscript development.
She graduated from Tufts University Post-Baccalaureate Program (Pre-Med) and is applying to Medical School

2012-2014 Shanon Safi, RD
University of Pittsburgh, Nutrition and Dietetics
Provided mentorship, training, and supervision on her work on the National Spina Bifida Patient Registry.
Currently Business Owner/Registered Dietitian at *Fuel the Fire*, Allentown, PA

2013-2014 Amanda Garver, MS
University of Pittsburgh, Rehabilitation Science
Provided mentorship, training, and supervision of her work on the National Spina Bifida Patient Registry,
She is currently a resident MD at University of Cincinnati Academic Health Center.

2011-2013 Andrew McCoy, MD
Carnegie Mellon University, Biological Sciences, Neuromuscular Track
I co-mentored and supervised Andrew in data collection during his work on the National Spina Bifida Patient Registry. He assisted us with data analysis

for the following manuscript: *Factors Associated with Mobility Outcomes in a National Spina Bifida.

Andrew is currently a Pediatric PM&R Fellow.

American Student Placements in Rehabilitation Engineering (ASPIRE) summer students

- 2020 Christina Patterson
Supervisor of summer REU/ASPIRE internship at HERL
Winner of the 2020 HERL REU/ASPIRE poster contest
Currently she is a sophomore at Massachusetts Institute of Technology studying Mechanical Engineering
- 6/2011-8/2012 Roohi Kapoor, PT
Indian Spinal Injuries Centre, New Delhi, India
RST Master's Degree Student
Master's thesis committee member
Mentored her at the UPMC Center for Assistive Technology and for her research experience in RST. She *Co-authored the following published article: Physical Activity, Exercise and Health Related Measures of Fitness in Adults with Spina Bifida: A Review of the Literature."
Currently she is Assistant Director of Rehabilitation at Ensign Services, Houston, TX
- 6/2010-8/2010 Keyona Smith (co-supervised with Brad Dicianno, MD)
Undergraduate Student, Bennett College for Women
Co-supervisor for ASPRIRE summer internship at VAPHS HER where she assisted with writing manual of operations, conducting mock trials, and initial phases of data collection and analysis for the project, "Effectiveness of an Upper Extremity Exercise Device and Text Message Reminders to Exercise in Adults with Spina Bifida: A Pilot Study"

Masters in Rehabilitation Science and Technology Students

- 2018 – 2019 Michael Huang, MS
University of Pittsburgh, student in Doctoral program in Rehabilitation Science.
Co-Supervisor with Dan Ding for his Masters in Rehabilitation Science and Technology.
Project Title: *MwheelFit Development and Feasibility*.
He is attending the PhD program in Rehabilitation Sciences at Pitt.
- 9/2017 – 7/2018 Mark Greenhalgh, PhD, MPH
University of Pittsburgh, RST
Mentor in research activities and manuscript preparation for Robotic Assisted Transfer device (Strong Arm) study
He is a post-doctoral fellow at Stanford University
- 9/2015 – 5/2016 Adam Sherman, MS
University of Pennsylvania, Biology
I served as a committee member of his master's degree in RST
Currently is a Medical Student, St. George's University, Puerto Rico

9/2012 – 5/2014 Yu-Ting Cheng, PT, MS
Chung Shan Medical University, Physical Therapy
Chairperson for master's degree in RST
First-place award at Rehabilitation Institute Day
Co-authored the manuscripts: **Validity of a Wheelchair Perceived Exertion Scale in People with Spina Bifida,* *Exercise Prescription Using a Group Normalized Rating of Perceived Exertion in Adolescents and Adults with SB,* and **Impact of Neurological Level and Spinal Curvature on Pulmonary Function in Adults with Spina Bifida.*
Currently Yu-Ting is employed by Permobil China as a Manufacturer's Representative, Shanghai, China

9/2012 – 5/2014 Aaron Greenbaum, MS
University of Michigan, Engineering
Master's Degree Committee Member in RST
He assisted in developing algorithms for Racing Smart Wheel and assisted in completing an article on the **Racing Smart Wheel*

Doctor of Rehabilitation Science and Technology Students

5/2020 – present Michael Huang, MS
University of Pittsburgh PhD Student
Co-Mentor with Brad Dicianno, MD, Dan Ding, PhD on the project *Body Composition and Energy Expenditure in Children with Spina Bifida* (R01)
Current doctoral student in Rehab Sci at Pitt

5/2020 – present Adam Sterczala, PhD, MPH
Clinical Supervisor/Mentor for VA Career Development Award 1
Title of his project is *Associations Between Circulating Irisin and Bone Status after Spinal Cord Injury*
Currently he is a post-doctoral student in the Neuromuscular Research Laboratories at the University of Pittsburgh

10/2013 – 2018 Kalai Tsang, PhD
University of Rochester
Doctorate in Rehabilitation Science Committee Member in RST. She was an IGERT Fellow mentors. She completed the paper:
**Validity of Activity Monitors in Wheelchair Users: A Systematic Review.* She also assisted with a book chapter on adaptive sports and authored the following: *Validity of Activity Monitors in Wheelchair Users: A Systematic Review*
Currently employed as Product Researcher, Phillips Sleep & Respiratory Care

Physical Medicine and Rehabilitation Fellow

5-2016-8/2016 Mariam Keramati, DO
College of Osteopathic Medicine of the Pacific/Western University of Health Sciences PM&R Spinal Cord Injury Fellow, University of Pittsburgh
I served as her research mentor and she co-authored this manuscript:

Exercise Prescription Using a Group Normalized Rating of Perceived Exertion in Adolescents and Adults with SB
Currently employed as PM&R physician, Sinai Hospital, Baltimore, MD

Doctor of Physical Therapy Students (Clinical Instruction)

- 2017-2018 *Clinical Instructor* for DPT/OTD students from University of Pittsburgh SHRS, Pittsburgh, PA at UPMC CAT. Provided students with practical experience in wheelchair service delivery process for people with complex neurological diagnoses including evaluating, prescribing, fitting, and modifying wheelchairs and other assistive technology (e.g., standers, beds). Trained students in safe transfers using manual and mechanical lifts and mobility devices. Engaged students in professional communication with multidisciplinary team member to share evaluation findings and make recommendations. Engaged students to incorporate knowledge of funding for assistive technology, consideration for alternative funding sources, and ethical and legal standards of practice into letters of medical necessity.
- 2011-present *Clinical Instructor* for Rehabilitation Science and Technology students at the UPMC Center for Assistive Technology taking HRS 3710 Clinical Applications and Seating and HRS 2705 Pract Rehab. Students developed understanding of the wheelchair service delivery process by observing/conducting mentored/supervised physical therapy evaluations to obtain assistive technology, engaged in trial, fit, and modifications of devices as part of team. Students synthesized knowledge of various forms of assistive technology (e.g., power chairs, manual wheelchair, beds, standers), apply their evaluative findings, understanding of funding sources, ethics, and professional communication as part of a multi-disciplinary team to construct an effective letter of medical necessity.
- 2007 - 2010 *Supervisor* for third year DPT students in Professional Exploration Course from Slippery Rock University, Slippery Rock, PA during clinical appointment at The Western Pennsylvania School for Blind Children. Provided practical opportunities to engage in physical therapy with students from WPSBC who have physical, behavioral, cognitive, and visual disabilities. Following mentored classroom instruction with students with complex physical, behavioral, cognitive, and visual disabilities for a semester, the third year DPT students developed a focused project to solve a gap in the literature or address a specific clinical issue that would add to the knowledge of evidence based research for other professionals (e.g., therapists, nurses, teachers).
- 2002 - 2009 *Clinical Instructor* for DPT students from the University of Pittsburgh, Duquesne University, and Chatham University during clinical appointment at the Western Pennsylvania School for Blind Children, Pittsburgh, PA. Mentored groups of students who were provided with the opportunity to work on mobility and transfers and other developmental skills with one of my students. DPT students learned to engage and communicate with and conduct physical therapy evaluations in students with complex neurological diagnoses and physical, behavioral, cognitive and visual disabilities. Evaluated students using CPI tool.

MEMBERSHIP AND POSITIONS

Service to National Organizations

Centers for Disease Control and Prevention

- Member Qualitative Data Working Group, National Spina Bifida Registry 2019-7/2021
& Centers for Disease Control and Prevention
- Our goal is to evaluate and determine most appropriate outcome measures to obtain quality of life information from people with spina bifida within the National Spina Bifida Registry

Rehabilitation Engineering Society of North America

- Vice Chair Rehabilitation Engineering Society of North America Standards 2020-present
Committee on Inclusive Fitness
- Responsible for writing the recommendations to inform community based fitness facilities and trainers about accessibility standards for the facility, programming, universally designed equipment, and training for fitness center leadership, staff and trainers (i.e., inclusive fitness certifications) with the goal of increasing opportunities that people with disabilities have, to exercise within the community. As Vice Chair I coordinate meetings and support the Chair with document revisions and communications to members. I was also a member from 2015-2019 and during our writing of Sections 1 -3 of the standards.

Service to Duquesne University Rangos School of Health Sciences

- Member Interprofessional Education Committee 2021-present
Responsible for assisting with set up of interprofessional days for students to work as part of interdisciplinary team to evaluate a model client and develop a plan of care. Responsible for upgrading the Blackboard site for students and faculty to a more workable and user-friendly Canvas site.
- Member Curriculum Committee 2021-present
Evaluate overall curriculum with focus on revising clinical Neurological track
- Member Search Committee 2021-present
Participate in review of CV's, biosketches and interview process

Service to School of Health and Rehabilitation Sciences (SHRS)

School of Health and Rehabilitation Sciences

- Chairperson University of Pittsburgh, SHRS Task Force on Career Tracks 2020-2021
- Goal of the committee is to investigate and develop expanded

career tracks to include a clinical pathway to promotion. We reviewed current national and tracks from other University of Pittsburgh departments, and have created a plan of action regarding the expansion of SHRS career tracks.

Human Engineering Research Laboratories

Chair	Social Committee <ul style="list-style-type: none"> • Goal was to create opportunities for faculty, staff and students to promote team building and engage in supportive enjoyable activities, including fitness classes 	2015-2017, 2020
Member	Organizational Committee <ul style="list-style-type: none"> • Develop organization job chart and description 	2015-2016
Member	Safety Committee <ul style="list-style-type: none"> • Developed and conducted action plan for individuals with disabilities during fire drills and other emergency situations 	2014-2017
Trainer	Transfer Training for Student Researchers and Faculty. <ul style="list-style-type: none"> • Provided hands on training to students and faculty who are conducting research with people with disabilities to ensure safe transfers and understanding of medical consequences of different diagnoses with respect to safety. <i>Applied technology to creating audio/video training materials for students and research participants for Strong-Arm robotic lift study</i> 	

University of Pittsburgh Medical Center Clinical Professional Service

Member	SHRS Pain and Rehabilitation Research Group	2019
EMR support	UPMC Center for Assistive Technology <ul style="list-style-type: none"> • Developed new letter of medical necessity template for UPMC CAT, an electronic instructional guide for clinicians and staff, and application of new template. Solved electronic medical record issue through collaboration with Epicare support staff. 	2019
EMR support	UPMC Center for Assistive Technology <ul style="list-style-type: none"> • Developed and implemented clinical/research Measurement tools 	2012-2021
Mentor	Job Shadow Day to students from Pittsburgh Public Schools. <ul style="list-style-type: none"> • Share in open dialogue with high school students and answered questions about my role as physical therapist both as a clinician and a rehabilitation researcher. 	2010-2011

Western Pennsylvania School for Blind Children

Member	Grieving and Loss Committee	2008-2009
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- Due to the pain of loss that families of children with disabilities and personnel at WPSBC faced when a child died, we established a committee to create a memorial and meditation room to provide a space for healing

Member	Early Childhood Transitional Committee	2008 to 2009
	<ul style="list-style-type: none"> • We worked to ensure a seamless transition with support for parents of children who were transitioning from early childhood center to preparatory division through family activities and education crossing both divisions 	
Member	Para-educator Subcommittee of Staff Development	2007 to 2009
	<ul style="list-style-type: none"> • Created and provided in-service training on all aspects of caring for children with complex disabilities 	
Member	Early Childhood Blending Committee	2006 to 2009
	<ul style="list-style-type: none"> • We created programming that brought together children from the Bright Beginnings Daycare housed within WPSBC and WPSBC students for recreational activities as well as during more formal classroom instruction, such as music or gym class. 	
Volunteer	Sibshop	2006 to 2009
	<ul style="list-style-type: none"> • We created and conducted a weekend program to address the needs and concerns of siblings of the students who attended WPSBC, promoted open conversation about what it is like to be a sibling of a brother or sister who has a disability, provide a supportive open environment, and provided fun and engaging activities for the group. 	

Service to State and Local Organizations

Western Pennsylvania School for Blind Children

Member	Ethical Review Board Western Pennsylvania School for Blind Children (WPSBC)	2018-present
	<ul style="list-style-type: none"> • We review grant proposals submitted to the Ethical Review Board and provide feedback on whether studies are appropriate, ethical to conduct at WPSBC, and have well-designed methods 	

Pennsylvania Physical Therapy Association

Co-Chair	Pediatric Section of Pennsylvania Physical Therapy Association	2015-2018
	<ul style="list-style-type: none"> • I served members in this elected position by developing programming for the PPTA annual meeting, engaging speakers, and holding business meeting. I wrote and distributed newsletters and answered queries regarding pediatric physical therapy and school-based intervention 	
Member	Prevention and Wellness Committee	2015-2018

Pennsylvania Physical Therapy Association

- We researched content and developed web pages for the Pennsylvania Physical Therapy Association website related to health and wellness as a business practice area for physical therapists and provided consumer information on adaptive sports and exercise

Spina Bifida Association of Western Pennsylvania

Member Housing Board 2012-present

Spina Bifida Association of Western Pennsylvania.

- We collaborate with accountants, engineers, contractors, architects, the office of housing and urban development, and residents to provide universally accessible and safe living space for individuals with spina bifida and other disabilities. Received the *Chairman's Outstanding Community Service award 2019.*

Member Program Committee 2010-present
Spina Bifida Association of Western Pennsylvania

- We provide health and wellness programming and opportunities for residents. We work with individuals with spina bifida who include a certified personal trainer/athlete/Paralympian to conduct exercise programming. We collaborate with an individual with spina bifida who teaches cooking classes for people with disabilities and registered dietitian to conduct monthly healthy nutrition/cooking classes to improve health/wellness of people with spina bifida.

Service to Community

Harmarville Outreach Programs and Education (HOPE) Network, Healthsports

Volunteer Assistant Coach 2019-present
Juniors Wheelchair Basketball Team.

- Attend weekly practices and assist Head Coach, John Sikora with equipment set up/repair, fitting of children in basketball wheelchairs, running drills and games and providing education and support.
- Wrote and obtained Pennsylvania State Grant to obtain wheelchair basketball chairs for the junior's program 2020.

Volunteer Assistant Coach 2012-2017 &
Junior's Adaptive Sports Program 2006-2008

- Assisted John Sikora, Executive Director of HOPE Network to provide education and active engagement of children with disabilities in wheelchair sports (e.g., basketball, rugby, baseball)
- Wrote and obtained grant funding for handcycles from Christopher and Dana Reeves Foundation to provide HOPE Network with handcycles

Volunteer Coach 2005 to 2006
Steel City Starz Women's Wheelchair Basketball Team.

- Team coach with John Sikora and Chaz Kellum for a competitive women's wheelchair basketball team, assisted and conducted practices, physical conditioning
- Coached at a National Women's Wheelchair Basketball Tournament, Lakeshore, AL

Volunteer 2000

- Set up of 3 on 3 basketball fundraisers
- Provided support and assistance during various fundraising activities

Other Training

Motivational Interviewing Training

Advanced Nutrition Counseling course 2018-2019
University of Pittsburgh

- Applied Motivational Interviewing through client counseling to establish and achieve nutrition, physical activity and health goals (Grade: A)

Motivational Institute Learning Alliance (MILA) course and follow up 2018-2019
Instructor: Alexander Waitt
Wexford, PA

Professional Communication

Toastmasters International 2011-2012
Gained presentation skills that I applied to conference presentations
North Hills Toastmaster Club #2472
Wexford, PA

Fitness and Wellness

Silver Sneakers Instructor 2010-2011
Provided exercise programming for individuals 62 and older
Urban Active, Bakery Square, Pittsburgh, PA

SCHOLARSHIPS

Scholarship Recipient

Regenerative Medicine Institute for Regenerative Medicine & Surgery Course 2019
Competitive application process. Attended this 1-week conference that encompassed fundamental principles and cutting-edge applications of regenerative medicine within clinical practice
Mayo Clinic, Rochester MN

Baker Travel Award 2019
Research Presentation
American Thoracic Society
San Diego, CA

Baker Travel Award 2015
Research and Instructional Course Presentation
International Seating Symposium
Nashville, TN

Baker Travel Award 2019
Training in Grantsmanship in Rehabilitation Research Conference
Competitive application process. Attended 4-day workshop that provided mentorship and support to gain the skills needed to successfully obtain grant funding at the private and national levels
Chapel Hill, NC

University of Pittsburgh Travel Award 2013
Course in Scientific Management and Leadership
Attended this 2-day workshop that provided instruction on leadership/team building, management of research program/laboratory and productivity, and ways to encourage creativity.
Pittsburgh, PA