OMB No. 0925-0001/0002 (Rev. 08/12 Approved Through 8/31/2015)

BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors.
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NAME: Margaret E. O’Neil

eRA COMMONS USER NAME (credential, e.g., agency login): MONEIL1

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 DateMM/YYYY | FIELD OF STUDY |
| --- | --- | --- | --- |
| Providence College, Providence, RIDuke University, Durham, NCUniversity of North Carolina-Chapel Hill, NCDrexel University, Philadelphia, PA | BS MS, PTMPHPhD  | 05/198105/198505/199505/1999 | BiologyPhysical Therapy (PT) Public HealthPediatric PT & Rehabilitation Sciences |

# A. Personal Statement

The focus of my research is to examine psychometric properties of physical activity measures in youth with cerebral palsy (CP) and to examine the effectiveness of activity-based interventions to promote functional mobility, physical activity and participation in youth with disabilities and those who have chronic conditions (i.e., obesity). I have conducted research with interdisciplinary and international teams to examine reliability and validity of accelerometers for measuring physical activity in ambulatory youth with CP and in establishing CP specific cut-points from accelerometer activity count data. I have worked on projects to conduct systematic reviews to identify best physical activity and fitness clinical outcome measures for youth with CP. In my intervention research, I conduct studies to examine effectiveness of various activity-based intervention strategies (video games, aquatics, yoga, health education & health promotion) to improve function, activity and health in youth with or at risk for disabilities and for those with chronic conditions. In past work, I have examined the effectiveness of health promotion programs in youth with obesity. And for both groups of children (disability and chronic conditions) I include examination of factors that may present as facilitators or barriers to health promotion to inform intervention design for optimal outcomes.

**B. Positions and Honors**

**Positions and Employment**

2000 – 2008 Drexel University, Philadelphia, PA. Assistant Professor, College of Nursing and Health

 Professions, Department of Physical Therapy and Rehabilitation Sciences.

2004 – pres. Drexel University, Secondary Faculty Appointment in the Department of Community Health and

 Prevention, School of Public Health.

2008 – pres. Drexel University, Philadelphia, PA. Associate Professor, College of Nursing and Health

 Professions, Department of Physical Therapy and Rehabilitation Sciences.

2013 – pres. Drexel University, Secondary Faculty Appointment in the Department of Nutrition Sciences,

 College of Nursing and Health Professions

**Other Experiences and Professional Membership**

 2000-2004 Co-Chair, Task Force on Clinical Pathways for Patient Management in Children with Cerebral

 Palsy, Spastic Diplegia, American Physical Therapy Association (APTA), Section on Pediatrics

2003-2005 Task force member - Research Summit I: Promotion of Fitness & Prevention of Secondary

 Complications for Children with Cerebral Palsy, APTA, Section on Pediatrics.

2006 – pres Member, Scientific Staff, Shriner’s Hospital, Philadelphia, PA

2009-pres. World Congress PT, member of the International Organization of Physical Therapists in

 Paediatrics Research Committee

2009 -2011 Chair, Health Promotion and Wellness Task Force, APTA, Section on Pediatrics

2010-2013 Scientific Advisory Board Member, President’s Council on Fitness, Sports and Nutrition, I Can Do It! You Can Do It! Program for individuals with disabilities

2012-2013 Co-chair, Childhood Obesity Task Force, APTA

2012- 2015 Chair, Research Committee, APTA, Section on Pediatrics

2013- 2015 Member, Public Health Sector Expert Panel for National Physical Activity Plan Update

**Honors & Awards**

1995 Member of the Delta Omega Society for Public Health

1999 APTA, Foundation for Research, Doctoral Dissertation Award

2000-01 National Institute on Disability and Rehabilitation Research (NIDRR), Office of Special

Education and Rehabilitative Services (OSERS), Switzer Merit Fellowship.

2003-04 Affiliated Researcher, Center for Health Equality, Drexel University College of Nursing and

Health Professions and School of Public Health.

2004-05 Sixth Annual Susan Harryman Lectureship on Cerebral Palsy, Kennedy Krieger Institute,

Baltimore, MD

2008-09 Drexel University, Office of the Associate Vice Provost for Faculty Development & Equity Award

2009 10th Anniversary: Susan Harryman Lectureship on Cerebral Palsy: Special Panel Participant,

Kennedy Institute, Baltimore, MD

2009 Recipient: APTA, Section on Pediatrics, National Research Award

**2014 Drexel University Faculty International Travel Award – for research sabbatical travel to Australia**

2015 Recipient, Drexel University Innovation Award

2015 Appointed to the American Academy for Cerebral Palsy and Developmental Medicine Awards

 Committee

2015 Appointed to the Foundation for Physical Therapy Scientific Review Committee

**C. Contributions to Science**

**1. Designing Interventions to Promote Physical Activity, Functional Mobility and Aerobic Fitness in Youth with Disabilities and Chronic Conditions** My research examines the effectiveness of physical therapy, rehabilitation, active recreation and habitual physical activity strategies to promote physical activity and functional mobility in youth with physical disabilities, especially youth with CP and those with obesity. Most youth with CP are ambulatory, however the majority have decreased physical activity levels and sedentary lifestyles increasing their risk for cardio-metabolic conditions, osteoporosis, overweight, and limited participation. Most youth who are obese exhibit decreased health status and face challenges to adopt behaviors to improve health. It is important to identify habitual physical activity levels and factors to promote health to inform and guide interventions (design and dosing) and recommendations for active lifestyles.

1. **O’Neil ME**, Fragala-Pinkham M, Lennon N, Trost SG. Active video games to promote physical activity in youth with cerebral palsy. APTA IV Step, July 2016. (abstract)
2. **O’Neil ME**, Shewokis PA, Ayaz H, Gray RC, Diefenbach PJ. enAble Games: Designing active video games to promote fitness and physical activity in youth with cerebral palsy. International Conference on Cerebral Palsy and other Childhood-onset Disabilities. Stockholm, Sweden. June, 2016 (abstract)
3. Mendonca CJ, Smith S, **O’Neil ME.** The relationship between lower extremity functional strength and

 aerobic performance in youth with cerebral palsy. *Med Sci Sports Exer*c. May 2016. (abstract)

1. Hawkins J, **O’Neil ME**. Youth who are obese sustain moderate to vigorous physical activity during active video games. *Med Sci Sports Exer*c. May 2016 (abstract)
2. Christy JB, Lobo MA, Bjornson KB, Dusing SC, Field-Fote E, Gannotti M, Heathcock J, **O’Neil ME**,

Rimmer J. Technology for Children with Brain Injury and Motor Disability: Executive Summary from

Research Summit IV. *Pediatr Phys Ther.* 2016 (in press).

1. **O’Neil ME,** Ideishi RI, Benedetto M, Ideishi SK, Fragala-Pinkham M. A yoga program for preschool

children in Head Start and Early Intervention: A feasibility study. *J Yoga Phys Ther*. 2016; 6:238.

doi:10.4172/2157-7595. 1000238

1. Rowland JL, Fragala-Pinkham M, Miles C, **O’Neil ME**. The Scope of Pediatric Physical Therapy Practice in Health Promotion and Fitness for Youth with Disabilities. *Pediatr Phys Ther*.2015; 27: 2-15.
2. Kolobe THA, Christy JB, Gannotti ME, Heathcock JC, Damiano DL, Taub E, Majsak MJ, Gordon AM,

 Fuchs RK, **O’Neil ME**, Caiozzo VJ. Research Summitt III proceedings on dosing in children with an

injured brain or cerebral palsy. *Phys Ther.* 2014: July; 94(7):907-920.

1. Fragala-Pinkham M, Smith HJ, Lombard KA, Barlow C, **O’Neil ME.** Aquatic aerobic exercise for children with cerebral palsy: A Pilot Study. *Physiother Theory Pract,* 2014; 30(2): 69–78
2. Abeyskeara P, Turchi R, **O’Neil ME**. Obesity and children with special health care needs: Special considerations for a special population. Current Opinions in Pediatrics. 2014; 26(4): 508-515.
3. Feehan KA, **O’Neil ME**, Abdalla D, Fragala-Pinkham M, Kondrad M, Berhane Z, Turchi R. Factors

influencing physical activity in children and youth with special health care needs: A pilot study.

*International Journal of Pediatrics.* vol. 2012. Article ID 583249,11 pgs, 2012.

1. Fragala-Pinkham M, Haley SM, **O’Neil ME**. Group swimming and aquatic exercise programme for

children with autism spectrum disorders: A pilot study. *Developmental Neurorehab,* Aug., 2011;

14(4):230-241.

1. Fragala-Pinkham MA, Haley SM, **O’Neil ME.** Summative Evaluation of a Pilot Aquatic Exercise Program for Children with Disabilities. *Disability and Health Journal*. Jan., 2010.
2. **O’Neil ME**, Shewokis PA, Falkenstein K, DeLago CW, Vaughn N, Costigan T, Smith SA. Psychosocial

factors and health perceptions in parents and children who are overweight or obese. *Obesity.*2010

18**,** 1558–1565.

1. Fragala-Pinkham MA, Haley SM, **O’Neil ME**. Group aquatic aerobic exercise program for children

 with disabilities. *Dev. Med. Child Neuro.* 2008; 50: 822-827

1. **O’Neil ME,** Fragala-Pinkham M, Westcott SL, Martin K, Chiarello LA, Valvano J, Rose RU. Physical therapy clinical management recommendations for children with cerebral palsy-spastic diplegia: Achieving functional mobility outcomes*. Pediatr Phys Ther* 2006;18: 49-72.

**2. Valid and Reliable Measures of Physical Activity in Youth with Cerebral Palsy** My research examines the reliability and validity of activity monitors and the use of heart rate monitors and rates of perceived exertion (RPE) scales to measure physical activity in youth with CP. Most physical therapy and rehabilitation interventions are activity-based and focus on increasing functional strength and endurance to promote physical activity, functional mobility, task performance and participation in daily activities for youth with CP. It is critical to identify valid and reliable measures to document current physical activity levels in youth with CP, to dose activity-based interventions and to examine the effectiveness of these interventions.

1. Trost SG, Fragala-Pinkham M, Lennon N, **O’Neil ME**. Decision trees for detection of activity intensity in

youth with cerebral palsy. *Med Sci Sports Exerc*. 2016; 48 (5): 958-966

1. **O’Neil ME**, Fragala-Pinkham M, Lennon N, George A, Forman J, Trost SG. Reliability and validity of objective measures of physical activity in youth with cerebral palsy who are ambulatory. *Phys Ther*. 2016; 96:37-45
2. Fragala-Pinkham M, **O’Neil ME**, Lennon N, Forman J, Trost SG. Validity of the OMNI rating of perceived exertion for children and adolescents with cerebral palsy. *Dev Med Child Neurol*. 2015; 57(8):748-53.
3. **O'Neil M,** Fragala-Pinkham M, Forman J, Trost S. Measuring reliability and validity of the ActiGraph GT3X accelerometer for children with cerebral palsy: A feasibility study. *J Pediatr Rehabil Med.*2014;

7:233-240.

1. Trost SG, **O'Neil ME**. Clinical use of objective measures of physical activity. *British Journal of Sports Medicine*. 2014;*48* 3: 178-181

 **3. Identifying psychometrically sound measures of physical activity and fitness for persons with CP**

My research examines laboratory and field-based measures to determine psychometric properties, feasibility and usefulness of these measures in research and clinical patient care. This work consists of systematic reviews of the literature and perspective articles on conceptual models to examine the evidence on outcome measures.

1. Gannotti ME, Bailes A, **O’Neil ME**, Williams U, DiRezze B, Law M. Comparative effectiveness research

and children with cerebral palsy: identifying a conceptual framework and specifying measures. *Pediatri*

 *Phys Ther.*2016:28;58-69.

1. Lennon N, Thorpe D, Dallmeijer AJ, Balemans ACJ, Fragala-Pinkham MA, **O’Neil ME**, Bjornson K,

 Clanchy K, Boyd RN. A Systematic Review of the Clinimetric Properties of Measures of Aerobic and

 Anaerobic Fitness in Adolescents and Adults with Cerebral Palsy. *Res in Dev Disabilities.*2015:45-

 46:316-328.

1. Balemans ACJ, Fragala-Pinkham MA, Lennon N, Thorpe D, Boyd RN, **O’Neil ME**, Bjornson K, Becher JG, Dallmeijer AJ. A Systematic Review of the Clinimetric Properties of Laboratory and Field based Measures of Aerobic and Anaerobic Fitness in Children with Cerebral Palsy. *Archives of Physical Medicine and Rehabilitation*. 2013;94:287-301
2. Fowler EG, Kolobe THA, Damiano DL, Thorpe D, Morgan DW, Brunstrom J, Coster WJ, Henderson RC, Pitetti KH, Rimmer JH, Rose J, Stevenson RD, ...**O’Neil ME…**Promotion of physical fitness and prevention of secondary conditions for children with cerebral palsy: Section on Pediatrics Research Summit Proceedings. *Phys Ther.*2007; 87(11):1495-1510.

**D. Research Support**

**NIH 1 R21 HD 086745 O’Neil ME (PI)** Sept. 2016 – Aug 2018

*Title: Machine learning algorithms to measure physical activity (PA) in children with cerebral palsy (CP)*

The purpose of this grant is to develop and test novel machine learning PA recognition, gait speed, and energy expenditure models for ambulant youth with CP.

**Drexel University**

**Coulter Translational Grant Program O’Neil (PI)** 10/ 2015 – 10/2016

*enAble Games: Expanding virtual reality rehabilitation for individuals with disabilities*

The goal of this grant is to develop the enAble Games web portal with menus of games for individuals with

different neuromotor disabilities and to refine the KOLLECT game for youth with CP.

**Ben Franklin Technology Partners O’Neil (Co-I)**  07/2015 – 6/ 2016

*enAble Games: Virtual reality rehabilitation for youth with cerebral palsy*

This program supports innovation in health technology for individuals with health and mobility limitations. The goal of this program is to support health technology transfer to a marketable product

**Past Support**

**Drexel University**

**Coulter Translational Grant Program O’Neil (PI)** 10/2014 – 10/2015

*KOLLECT: Virtual reality rehabilitation for youth with cerebral palsy.*

The goal of this grant is to develop the KOLLECT active video game prototype into a clinically feasible gaming

strategy to improve fitness and physical activity levels in youth with CP.

**Drexel University O’Neil (Co-PI)** 09/ 2012 – 08/2013

**ExCITe Center Initiative**

*KOLLECT: Virtual Reality Gaming for Youth with CP –* The goal of this pilot project was to develop a prototype of a virtual reality game for PT interventions to improve fitness and physical activity in youth with CP

**1 R24 HD065688-01 Jette (PI)**  07/2010 – 06/2015

Boston University: Improving Outcome Measurement for Medical Rehabilitation Clinical Trials

**Pilot Project: O’Neil (PI)** 07/2010 – 06/2013

*Accelerometry for Clinical Trials in Youth with CP*

The goal of this project is to validate accelerometry for ambulatory youth with CP, GMFCS Levels I-III

**American Academy for Cerebral Palsy O’Neil (PI)** 10/01/09 – 03/31/2011

**and Developmental Medicine Planning Grant**

*Title: FIT- ACTIVE-HABITS: Measurement of Fitness & Habitual Physical Activity in Persons with CP.*

This project examined clinimetric properties of laboratory and field-based measures in persons with CP

**American Physical Therapy Association O’Neil (PI)** 01/01/09 – 6/30/10

**Section on Pediatrics Research Grant**

*Accelerometry to measure physical activity intensity in school-aged children with CP.*

This grant examined validity and reliability of accelerometry to measures physical activity in youth with CP