

**BIOGRAPHICAL SKETCH**

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NAME: Howie, Erin Kaye

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

POSITION TITLE: Assistant Professor of Exercise Science

**EDUCATION/TRAINING**

INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
University of Maryland, College Park, MD	B.S.	05/2008	Kinesiology
University of South Carolina, Columbia, SC	Ph.D.	05/2013	Exercise Science
Curtin University, Perth, Australia	Postdoctoral	07/2016	Physiotherapy and Exercise Science

**A. Personal Statement**

I have worked extensively in physical activity measurement and interventions for children, including a role as a key interventionist a 5 year R01 (PI Russell Pate) in preschools and evaluating a community intervention for Australian adolescents with obesity. I have experience designing, implementing, conducting process evaluations, and evaluating interventions across populations (pre-school to adolescent), interventions (active video games to multidisciplinary community interventions), and outcomes (physical activity, fitness, quality of life). As recognition of my work in physical activity and health, I received the **American Heart Association's Council on Lifestyle and Cardiometabolic Health scholarship** to attend the Physical Activity Research Course in 2016, a competitive and intensive training course for early career researchers in the field.

While working on physical activity interventions in children, I observed a need for practical and complex measurement of physical activity. The field is currently undergoing a methodological shift in best-practice of measurement. In order to make as many children as active and healthy as possible, it is important to quantify and maximize beneficial activity behaviors, and I have published several papers exploring novel ways to quantify activity that are meaningful for behavioral interventions.

My NIH interdisciplinary training makes me an ideal researcher to integrate exercise science and computer science methods and health outcomes in this multidisciplinary topic. I was a **pre-doctoral fellow in the NIH-T32 Behavioral and Biomedical Program** at the University of South Carolina which integrated fellows from exercise science, psychology and epidemiology. I participated in biomedical coursework and lab rotations, including one in cognitive neuroscience. I have continued this interdisciplinary approach to my research throughout my international postdoctoral fellowship, where I learned to collaborate with world leaders, and gained effective distance project management and collaborative skills. At the University of Arkansas, I have already established partnerships in recreation, nursing, human development and nutrition in the first semester, including garnering external support through an *Arkansas Biosciences Institute* grant for interdisciplinary collaboration to examine relationships between physical activity, executive functions, and cardiovascular health in adolescents with and without obesity.

1. **Howie EK**, McVeigh JA, Smith AJ, Straker LM. Organized sport trajectories from childhood to adolescence and health associations. *Medicine & Science in Sports & Exercise*. 2016; 48(7): 1331-9.
2. **Howie EK**, Brewer AE, Brown WH, Pfeiffer KA, Saunders RS, Pate RR. The three-year evolution of a preschool physical activity intervention through a collaborative partnership between research interventionists and preschool teachers. *Health Education Research*. 2014;29:491-502.

3. **Howie EK**, Schatz J, Pate RR. Acute effects of classroom exercise breaks on executive functions and math performance in elementary school students: A dose-response. *RQEst*. 2015; May 26: 1-8.

## B. Positions and Honors

### Positions and Employment

- 2008-2013 NIH-T32 Predoctoral Fellow, Biomedical-Behavioral Interface Program, University of South Carolina, Columbia, SC
- 2010-2013 Research Assistant, Children's Physical Activity Research Group, University of South Carolina, Columbia, SC
- 2016- Adjunct Research Fellow, School of Physiotherapy and Exercise Science, Curtin University, Perth, Australia
- 2016- Assistant Professor, Department of Health, Human Performance, and Recreation, University of Arkansas, Fayetteville, AR

### Other Experience and Professional Memberships

- 2015-2016 National Health and Medical Research Council of Australia external project grant assessor
- 2016 Health Research Board Ireland external grant reviewer
- 2010- Member, American College of Sports Medicine
- 2014- Committee member (Communications), International Society for Physical Activity and Health
- 2016- Member, International Society for Behavioral Nutrition and Physical Activity
- 2016- Early Career Member, American Heart Association Council on Lifestyle and Cardiometabolic Health

### Honors

- 2013 Delta Omega Honorary Society in Public Health
- 2013 Arnold School of Public Health Doctoral Achievement Award
- 2014 Invited to write sedentary paper with the Research Working Group for Active Health Kids Australia Report Card
- 2015 National Health and Medical Research Council of Australia Early Career Observer, nominated Curtin University delegate
- 2016 American Heart Association's council on Lifestyle and Cardiometabolic Health Physical Activity Research Course, Scholarship recipient

## C. Contributions to Science

*Complex understanding of physical activity behaviors* - I have demonstrated sophisticated physical activity measurement methods and analyses in applied intervention examples. My research has focused on increasing physical activity and understanding the benefits of physical activity. However, to better understand the context of the behavior and to inform interventions, we must have valid and comprehensive measures of the behavior. My publications from secondary analyses of multiple children's physical activity interventions and trajectory analyses of longitudinal data show my understanding of the intricacies and importance of triangulating data to better understand problems. My review of key issues in using missing accelerometer data, coined "missingness", shows an understanding of the practicalities of measuring physical activity in children.

1. **Howie EK**, Smith AI, McVeigh JA, Straker LM. Accelerometer derived activity phenotypes in young adults: A latent class analysis. *International Journal of Behavioral Medicine*. 2018: Apr 30. Epub.
2. **Howie EK**, McVeigh JA, Straker LM. Comparison of compliance and agreement of hip and wrist accelerometers in children. *Journal of Physical Activity & Health*. 2016;13(9):964-969.
3. **Howie EK**, Straker LM. Rates of attrition, non-compliance and missingness in randomized controlled trials of child physical activity interventions using accelerometers: a brief methodological review. *Journal of Science and Medicine in Sport*. 2016;19:830-6.

*Understanding and measurement of physical activity across the life course* –During my postdoc in Australia, I was heavily involved in the physical activity measures in the Western Australian Pregnancy Cohort (Raine Study). The Raine Study includes a cohort of approximately 3,000 participants in Western Australia. While sport and activity has been assessed throughout their lifespan, physical activity was measured by 24-hour

accelerometry at age 22 and is currently being assessed in their parents using an identical protocol. Utilizing a life course approach, we have built longitudinal trajectories of behaviors including sports participation, television watching and sleep using novel to the field methods of latent class analysis. I continue to conduct and report analyses of life course models of physical activity from the Raine Study.

1. Straker LM, Hall GL, Mountain J, **Howie EK**, White E, McArdle N, Eastwood PR, and the Raine Study 22 year follow-up investigator group. Rationale, design and methods for the 22 year follow-up of the Western Australian Pregnancy (Raine) Study Cohort. *BMC Public Health*. 2015;15:663.
2. **Howie EK**, McVeigh JA, Winkler EAH, Healy GN, Bucks RS, Eastwood PPR, Straker LM. Correlates of physical activity and sedentary time in young adults: The Raine Study. (Under Review)
3. **Howie EK**, Smith AJ, McVeigh JA, Straker LM. Accelerometer-derived activity phenotypes of young adults: A latent class analysis. (Under Review)

*Psychological effects of physical activity* - Working closely with teachers, I realized the importance of measuring psychological outcomes for physical activity interventions. These educational outcomes are broad and include cognitive functions, academic achievement, student engagement, and positive mental health. I co-authored a narrative review on the educational effects and learned that a lot was still unknown. Thus, for my dissertation, I obtained funding from the American College of Sports Medicine to conduct an experimental study on the cognitive, academic and behavioral dose-response effects of classroom exercise breaks. I have become recognized as an emerging expert in this area and regularly receive requests to review manuscripts as well as to lead a book chapter on this topic.

1. **Howie EK**, Pate RR. Physical activity and academic achievement in children: A historical perspective. *Journal of Sport and Health Science*. 2012;1:160-169.
2. **Howie EK**, Beets MW, Pate RR. Acute classroom exercise breaks improve on-task behavior in 4<sup>th</sup> and 5<sup>th</sup> grade students. *Mental Health & Physical Activity*. 2014;7:65-71.
3. **Howie EK**, Newman-Norlund RD, Pate RR. Smiles count but minutes matter: Response to classroom exercise breaks. *American Journal of Health Behavior*. 2014;38:681-689.

#### **Complete List of Published Work in MyBibliography:**

[https://www.ncbi.nlm.nih.gov/sites/myncbi/1r1\\_sxvxxf1Qu/bibliography/40982038/public/?sort=date&direction=ascending](https://www.ncbi.nlm.nih.gov/sites/myncbi/1r1_sxvxxf1Qu/bibliography/40982038/public/?sort=date&direction=ascending)

#### **D. Additional Information: Research Support and/or Scholastic Performance**

- 2014 PI, Early Career Research Grant. Department of Physiotherapy and Exercise Science, Curtin University, \$AUD 6,773, A laboratory study on the physical effects of mobile technology use in young children  
*iMove, iPlay: The physical implications of tablet computer use by young children.*
- 2016 Co-investigator (CIB), Healthway Exploratory Grant, PI Leon Straker, \$AUD 69,993  
Smart Start: a program for healthy mobile technology use by young children
- 2016 PI, Provost Collaborative Grant, University of Arkansas, \$USD 1,950, will examine the associations between physical activity, technology use and cognitive functions of young children in childcare
- 2017 PI, Arkansas Biosciences Institute, \$20,100, Executive functions and obesity-related behaviors in adolescents with or without obesity.
- 2018 PI, Honors Research Team Grant, University of Arkansas, \$USD 6,000, will explore innovative campus-wide cohort study and achieve American of College of Sports Medicine recognition for Exercise is Medicine.