

**Shelby Keye, Ph.D.**  
**Assistant Professor**

Department of Health and Kinesiology | University of Illinois at Urbana-Champaign  
340 Freer Hall | 906 S. Goodwin Ave, Urbana, IL 61801  
(703)-585-9865 | skeye2@illinois.edu

---

**Education**

**Ph.D., Kinesiology and Community Health**

University of Illinois at Urbana-Champaign

*Advisor:* Dr. Naiman Khan, Ph. D., R.D.

**Dissertation:** Physical Activity, Fitness and Obesity Influences on Cognitive and Motor Functions

**M.S., Exercise Science**

University of Massachusetts Boston

*Advisor:* Dr. Sarah Camhi, Ph.D.

**Thesis:** The Relationship Between Enjoyment and Physical Activity During a Community Based Youth Physical Activity Program

**B.S., Human Nutrition, Foods, and Exercise**

Virginia Polytechnic Institute and State University (“Virginia Tech”)

---

**Academic Positions**

2023-current **Assistant Professor**

University of Illinois at Urbana Champaign, Urbana, IL

Director of PLAYFUL laboratory

2019- 2023 **Graduate Research Assistant**

University of Illinois at Urbana-Champaign, Urbana, IL

Neurocognitive Health Behavior Laboratory- PI: Naiman Khan, Ph.D., R.D.

2018-2019 **Graduate Research Assistant**

UMass Boston, Boston, MA

Project Exercise Prescription Research Study- PI: Dr. Sarah Camhi, Ph.D.

---

**Publications**

*Peer Reviewed Journal Articles*

2025

**Keye, S. A.**, Holthaus, T. A., Cannavale, C. N., Rosok, L. M., Lamblin, E., Renzi-Hammond, L., Holscher, H. D., & Khan, N. A. (2025). MIND Diet Pattern Is Associated with Attentional Control in School-Aged Children. *Journal of Cognitive Enhancement*. <https://doi.org/10.1007/s41465-025-00318-4>

Martell, S. G., **Keye, S. A.**, Kim, J., Walk, A., Erdman, J. W., Adamson, B., Motl, R. W., & Khan, N. A. (2025). Exploring Differences in the Lateralized Readiness Potential in Persons With Multiple Sclerosis Compared to Healthy Controls. *Psychophysiology*, *62*(2), e70022. <https://doi.org/10.1111/PSYP.70022>

2024

Kim, J., Walk, A. M., **Keye, S. A.**, Kinder, C. J., Cannavale, C. N., Burd, N. A., & Khan, N. A. (2024). Adiposity influences intraindividual variability in behavioral and neuroelectric indices of attentional inhibition. *Psychophysiology*, *00*, e14677. <https://doi.org/10.1111/PSYP.14677>

Rosok, L. M., Fifield, L. M., Sarma, R., **Keye, S. A.**, Walk, A. M., & Khan, N. A. (2024). Skin Carotenoids are Related to Cognitive Abilities among Toddlers. *The Journal of Nutrition*. <https://doi.org/10.1016/J.TJNUT.2024.09.001>

Rosok, L. M., Cannavale, C. N., **Keye, S. A.**, Holscher, H. D., Renzi-Hammond, L., & Khan, N. A. (2024). Skin and macular carotenoids and relations to academic achievement among school-aged children. *Nutritional Neuroscience*. <https://doi.org/10.1080/1028415X.2024.2370175>

**Keye, S. A.**, Kinder, C. J., Rosok, L. M., Cannavale, C. N., Walk, A., & Khan, N. A. (2024). Neuroelectric Indices of Pre-Motor Planning and Adiposity are Selectively Related to Balance in Children. *Human Movement Science*, *95*, 103126. <https://doi.org/10.1016/j.humov.2024.103216>

Holthaus, T.A., **Keye, S.A.**, Verma, S., Cannavale, C.N., Burd, N.A., Holscher, H.D., Khan, N.A. (2024) Dietary Patterns and Carotenoid Intake: Comparisons of MIND, Mediterranean, DASH, and Healthy Eating Index. *Nutrition Research*, *126*, 58-66. <https://doi.org/10.1016/j.nutres.2024.03.008>

2023

Cannavale, C. N., Edwards, C. G., Liu, R., **Keye, S. A.**, Iwinski, S. J., Holscher, H. D., Renzi-Hammond, L., Khan, N. A., & Khan, N. A. (2023). Macular pigment is inversely related to circulating C-reactive protein concentrations in school-aged children. *Nutrition Research*, *114*, 13–19. <https://doi.org/10.1016/j.nutres.2023.03.003>

**Keye, S. A.**, Morales, D., Walk, A. M., Cannavale, C. N., & Khan, N. A. (2023). Neuroelectric indices of attention are related to academic skills in preschool-aged children. *Trends in Neuroscience and Education*, *32*, 100205. <https://doi.org/10.1016/j.tine.2023.100205>

**Keye, S. A.**, Kinder, C. J., Ragab, S., Ouzidane, M., Rich, A., Richards, K. A., & Khan, N. A. (2023). Effects of a Summer Physical Activity Program on Fitness and Cognitive Function among Children from Low Socioeconomic Households. *Journal of Cognitive Enhancement*. <https://doi.org/10.1007/s41465-023-00266-x>

Cannavale, C. N., **Keye, S. A.**, Rosok, L. M., Martell, S. G., Holthaus, T. A., Raine, L. R., Mullen, S. P., Holscher, H. D., Hillman, C. H., Kramer, A. F., Cohen, N. J., Hammond, B. R., Renzi-Hammond, L., & Khan, N. A. (2023). Macular Pigment Optical Density and Skin Carotenoids in a Childhood Sample. *The Journal of Nutrition*. <https://doi.org/10.1016/j.tjn.2023.06.006>

Walk, A. M., Cannavale, C. N., **Keye, S. A.**, Rosok, L., Edwards, C., & Khan, N. (2023). Weight status impacts children's incidental statistical learning. *International Journal of Psychophysiology*, *187*, 34–42. <https://doi.org/10.1016/j.ijpsycho.2023.02.003>

- 2022 **Keye, S. A.**, Kim, J., Cannavale, C. N., Walk, A. M., Burd, N. A., Pindus, D., & Khan, N. A. (2022). Neuroelectric indices of motor response preparation are selectively associated with physical activity among adults with obesity. *International Journal of Psychophysiology*, 182, 200-210. <https://doi.org/10.1016/j.ijpsycho.2022.10.013>
- Cannavale, C. N., **Keye, S. A.**, Rosok, L., Martell, S., Holthaus, T. A., Reeser, G., Raine, L. B., Mullen, S. P., Cohen, N. J., Hillman, C. H., Hammond, B. R., Renzi-Hammond, L., & Khan, N. A. (2022). Enhancing children's cognitive function and achievement through carotenoid consumption: The Integrated Childhood Ocular Nutrition Study (iCONS) protocol. *Contemporary Clinical Trials*, 122. <https://doi.org/10.1016/j.cct.2022.106964>
- 2021 **Keye, S. A.**, Walk, A. M., Cannavale, C. N., Iwinski, S., McLoughlin, G. M., Steinberg, L. G., & Khan, N. A. (2021). Six-minute walking test performance relates to neurocognitive abilities in preschoolers. *Journal of clinical medicine*, 10(4), 584. <https://doi.org/10.3390/jcm10040584>

#### Book Chapters

- 2024 Kim, J., **Keye, S. A.**, Pascual-Abreu, M., & Khan, N. A. (2024). Effects of an acute bout of cycling on different domains of cognitive function. In *Progress in Brain Research*. Elsevier B.V. <https://doi.org/10.1016/bs.pbr.2024.01.005>

#### Manuscripts Under Review

- 2025 **Keye, S.A.**, Hallal, P.C., Inacio,C., Rodrigues Domingues, M., Salaberry Leite,G., Amaral de Andrade Leão,O. (2025). Physical Activity and BMI inequalities throughout childhood: A Brazilian birth cohort study. *The Lancet: Regional Health (UNDER REVIEW)*

#### Abstracts

- 2025 **Keye, S.A.**, Hallal, P.C., Inacio,C., Rodrigues Domingues, M., Salaberry Leite,G., Amaral de Andrade Leão,O. (2025). Physical Activity and BMI inequalities throughout childhood: A Brazilian birth cohort study. *Medicine & Science in Sports & Exercise (IN PRESS)*
- Liu, R., Kinder,C., McCabe, E., **Keye, S.A.**, Jones, E., Madson, J., Hodge, K., Richards, K.A., Khan, N. (2025) Protocol for the Integrated Childhood Activity and Nutrition (ICAN) Study. *Current Developments in Nutrition (IN PRESS)*
- 2023 Singh, A., Kinder, C., Rosok, L., Khan, N., **Keye, S.** (2023). Household Chaos is Related to Physical Activity in Children from Low-Income Households. *Midwest American College of Sports Medicine Annual Meeting*
- Keye, S.**, Kinder, C., Rosok, L., Khan, N. (2023). Neuroelectric indices of pre-motor planning are selectively related to balance in children. *Psychophysiology*, 60,056.
- Rosok, L., Fifield, L., Sarma, R., **Keye, S.**, Walk, A., Khan, N. (2023) Skin Carotenoids and Mismatch Negativity in Toddlers. *Psychophysiology*, 60, 055.
- Martell, S., **Keye, S.**, Kim, J., Walk, A., Erdman, J., Adamson, B., Motl, Khan, N. (2023) Understanding the Neural Underpinnings of Motor Impairment in Persons with Multiple Sclerosis Using the Lateralized Readiness Potential. *Psychophysiology*, 60.
- Martell, S., **Keye, S.**, Kim, J., Walk, A., Erdman, J., Adamson, B., Motl, Khan, N. (2023) Effects of Multiple Sclerosis Extend to Intra-Individual Variability in the P3 ERP Component. *Psychophysiology*, 60, 069

Kim, J., Walk, A., **Keye, S.**, Kinder, C., Cannavale, C., Burd, N., Khan, N. (2023) Increased Adiposity is Related to Intraindividual Variability in Cognitive Control. *Psychophysiology*, 60, 020

Sarma, R., Fifield, L., Rosok, L., **Keye, S.**, Walk, A., Khan, N., Schulze, K., Hampel, D., Wu, L., Baker, S., Stephenson, K., Shaikh, S., Ali, H., Shehab-Ferdows, S., Allen, L., West, K., & Christian, P. (2023). Maternal Physical Activity During Pregnancy Linked With Better Receptive and Expressive Communications in Toddlers. *Current Developments in Nutrition*, 7(1), 101107.

Rosok, L., Fifield, L., Sarma, R., **Keye, S.**, Walk, A., Khan, N., Verma, S., Kinder, C., Sethi, S., Kim, J., Barnett, M., Abreu, M., Moran, N., Wade, J., Stroh, R., Stoll, B., Hair, A., & Burrin, D. (2023). Increase in Skin Carotenoids is Related to Greater Improvements in Cognition Among Toddlers Across Six Months. *Current Developments in Nutrition*, 7(1), 100204.

**Keye, S.**, Holthaus, T., Cannavale, C., Rosok, L., Lamblin, E., Renzi-Hammond, L., Holscher, H., & Khan, N. (2023). MIND Diet Pattern Is Selectively Associated With Attentional Control in Preadolescent Children. *Current Developments in Nutrition*, 7(1), 100656.

Cannavale, C., **Keye, S.**, Rosok, L., Martell, S., Holthaus, T., Raine, L., Mullen, S., Holscher, H., Hillman, C., Kramer, A., Cohen, N., Hammond, B., Renzi-Hammond, L., & Khan, N. (2023). Macular Pigment Optical Density and Skin Carotenoids in a Midwestern Childhood Sample. *Current Developments in Nutrition*, 7(1), 100203.

Holthaus, T., **Keye, S.**, Verma, S., Cannavale, C., Holscher, H., Khan, N., Hudson, E., Steinhardt, M., Davis, J., & Burgermaster, M. (2023). P14-033-23 Dietary Patterns and Carotenoid Intake: Comparisons of MIND, Mediterranean, DASH, and Healthy Eating Index. *Current Developments in Nutrition*, 7(1).

**Keye, S. A.**, Kinder, C. J., Ragab, S., Ouzidane, M., Rich, A., Richards, K. A., & Khan, N. A. (2023) Effects of a Summer Physical Activity Program on Fitness and Cognitive Function among At-risk Children: 520. *Medicine & Science in Sports & Exercise* 55(9S): p168

Kinder, C. J., **Keye, S. A.**, Cannavale, C. N., Walk, A. M., Khan, N.A. Beyond Measures Of Central Tendency: Aerobic Fitness And Childhood Cognitive Control: 1510. *Medicine & Science in Sports & Exercise* 55(9S): p 507

Kim, J., Paulussen, K.J.M., Keye, S.A., Mehta, T.D., Lamblin, E.N., Pascual-Abreu, M., Burd, N.A., Khan, N.A., Increased P3 Variability Following An Acute Bout Of Cycling: 1511. *Medicine & Science in Sports & Exercise* 55(9S): p 507

2022 **Keye, S.A.**, Walk, A.M., Cannavale, C.N., Khan, N.A. (2022) Neuroelectric indices of attention are related to academic skills in preschool aged children. Society for Neuroscience Conference. *Society for Neuroscience Conference, San Diego, CA.*

Rosok, L., Fifield, L., Sarma, R., **Keye, S.**, Walk, A., Khan, N. (2022). Interrelationships between mismatch negativity and visual evoked potentials and cognitive, language, and motor development among toddlers. *Society for Neuroscience Conference, San Diego, CA*

**Keye, S. A.**, Pindus, D. M., Walk, A. M., Burd, N. A., Holscher, H. D., & Khan, N. A. (2022). Moderate-to-vigorous Physical Activity Is Related To Pre-motor Planning In Persons With Obesity: 783. *Medicine & Science in Sports & Exercise*, 54(9S), 187-188.

McMath, A., **Keye, S.**, Iwinski, S., Cannavale, C., Khan, N., & Donovan, S. (2022). Associations Between Dietary Patterns and Fiber Intake and Cognitive Performance in Early Childhood. *Journal of the Academy of Nutrition and Dietetics*, 122(10), A91.

Fifield, L., Khan, N., Walk, A., **Keye, S.**, Rosok, L., & Sarma, R. (2022). Skin Carotenoids Are Related to Cognitive and Motor Skills Among Toddlers. *Current Developments in Nutrition*, 6(Supplement\_1), 59-59.

Yen, T., McMath, A., **Keye, S.**, Iwinski, S., Cannavale, C., Walk, A., & Khan, N. (2022). Skin Carotenoids and Diet Quality Are Associated With Intellectual Ability Among Preschool-Aged Children. *Current Developments in Nutrition*, 6(Supplement\_1), 68-68.

Rosok, L., Cannavale, C., **Keye, S.**, Edwards, C., & Khan, N. (2022). Skin Carotenoids and Relations to Intellectual Abilities and Academic Achievement Among School-Aged Children. *Current Developments in Nutrition*, 6(Supplement\_1), 66-66.

2020 **Keye, S. A.**, Edwards, C. G., Cannavale, C. N., Iwinski, S. J., Reeser, G. E., Walk, A. D., Mazzoli, E., Barnett, Lisa M., & Khan, N. A. (2020). Relationships Between Adiposity and Parent's Perceptions of Their Children's Fundamental Movement Skills and Coordination. *North American Society for the Psychology of Sport and Physical Activity Conference*

**Keye, S.**, Edwards, C. G., Cannavale, C. N., Iwinski, S. J., Reeser, G. E., Walk, A. D., Mazzoli, E., Barnett, Lisa M., & Khan, N. A. (2020). Parent-report Of Children's Motor Skills Are Selectively Related To Interference Control Among School-aged Children. *Medicine & Science in Sports & Exercise*, 52(7S), 614.

2018 **Keye, S.**, Trudeau, G.C., Hayman, L.L., Troped, P.J., Lindsay, A.C., Wright, J.A., Camhi, S.M (2018). Associations of Self-Efficacy, Social Support, and Stage of Change with Exercise Prescription Adherence. *American College of Sports Medicine: New England Chapter Conference, Providence, RI*

### **Conference and Symposia Presentations**

---

2023 Relationships between Physical Activity and Behavioral and Neuroelectric Indices of Motor Coordination in Children from Underserved Communities. Oral Presentation at *Illinois Association for Health, Physical Education, Recreation, and Dance* (12/2023) Chicago, IL.

Neuroelectric indices of pre-motor planning are selectively related to balance in children. *Poster presentation at Society for Psychophysiological Research Conference* (9/2023) New Orleans, LA.

MIND Diet Pattern Is Selectively Associated With Attentional Control in Preadolescent Children. *Poster presentation at Nutrition 2023* (7/2023) Boston, MA.

Macular Pigment Optical Density and Skin Carotenoids in a Midwestern Childhood Sample. *Oral presentation at Nutrition 2023* (7/2023) Boston, MA.

---

Effects of a Summer Physical Activity Program on Fitness and Cognitive Function among At-risk Children. *Oral poster presentation at American College of Sports Medicine Annual Meeting* (6/2023) Denver, CO.

- 2022 Neuroelectric indices of attention are related to academic skills in preschool aged children. Society for Neuroscience Conference. *Poster Presentation Society for Neuroscience Conference* (11/2022) San Diego, CA
- Moderate-to-vigorous Physical Activity Is Related To Pre-motor Planning In Persons With Obesity. *Oral presentation at ACSM Annual Meeting* (6/2022) San Diego, CA.
- 2020 Relationships between adiposity and Parent’s Perceptions of their Children’s Fundamental Movement Skills and Coordination. *Virtual Oral Presentation Virtual at NASPSPA Conference* (6/2020)
- Parent-report of Children’s Motor Skills are Selectively Related to Interference Control among School-aged Children. *Virtual Poster Presentation at ACSM Annual Meeting* (6/2020)
- Parent-report of Children’s Motor Skills are Selectively Related to Interference Control among School-aged Children. *Invited: Oral Presentation at University of Illinois Urbana Champaign Community of Scholars Seminar* (3/2020) Urbana, IL
- 2018 Associations of Self-Efficacy, Social Support, and Stage of Change with Exercise Prescription Adherence. *Poster presented at New England ACSM Conference* (11/2018) Providence, RI

## Grants

---

2024

### **UIUC Campus Research Board**

Principal Investigator: “The Assessment of Fitness, Movement Behaviors, and Cognitive Skills in Children During the Transition from Preschool to Kindergarten”, \$26,429 (Funded 12/2024)

### **UIUC-UIC CHAD Interdisciplinary Collaborative Grant Program**

Principal Investigator: “Convergent Effects of Health Behaviors on Neurocognitive and Academic Performance”, \$40,000 (Funded 4/2024)

### **Illinois Association for Health, Physical Education, Recreation, and Dance Research Grant**

Co-Investigator: “Behavioral indices of Resilience to Early Experiences Study (BREES): The influence of resilience on student health outcomes”, \$5,000 (Funded 5/2024)

2022

### **Illinois Association for Health, Physical Education, Recreation, and Dance Research Grant**

Principal Investigator: “Relationships between Physical Activity and Behavioral and Neuroelectric Indices of Motor Coordination in Children from Underserved Communities”, \$4,500 (Funded 5/2022)

### **ACSM Foundation Doctoral Student Research Grant**

Principal Investigator: “iPALS Movement: Effects of a Physical Activity Program on Neural Measures of Motor Function in Children”, \$5000 (Funded 4/2022)

---

## Awards and Honors

---

2022	Trainee Professional Development Award, <i>Society for Neuroscience</i>  Department of Kinesiology and Community Health Robert L. Sprague Graduate Student Award, <i>University of Illinois Urbana Champaign</i>
2020-2024	Leadership and Diversity Training Program Protégé, <i>American College of Sports Medicine</i>
2020	Student Scholarship Award, <i>North American Society for the Psychology of Sport and Physical Activity</i>
2019	Graduate College Fellowship, <i>University of Illinois Urbana Champaign</i>

## **Teaching**

---

### *Current Courses*

*HK440: Exercise and Health Psychology (fall)*

*HK201: Health Sciences Research Methods (spring)*

*HK443: Psychophysiology of Exercise and Sport (spring)*

### *Invited Guest Lectures*

Spring 2023 KIN 140, Social Sciences of Human Movement, University of Illinois Urbana Champaign  
Topic: Implementation of the IPALS Wellness Program

Spring 2021 KIN 201, Physical Activity Research Methods, University of Illinois Urbana Champaign  
Topic: Research Methods in the BCNN Lab

Fall 2021 KIN 201, Physical Activity Research Methods, University of Illinois Urbana Champaign  
Topic: Physical Activity Assessments with Practical Applications in the IPALS Wellness Program

KIN140, Social Sciences of Human Movement, University of Illinois Urbana Champaign  
Topic: Physical Activity Assessments

KIN 444, Physical Activity and Chronic Disease, University of Illinois Urbana Champaign  
Lecture 1 Topic: Physical Activity and Obesity  
Lecture 2 Topic: Physical Activity and Depression

Fall 2018 EHS 230, Strength and Conditioning, University of Massachusetts Boston  
Topic: ACL Injuries and Rehabilitation

### *Teaching Assistant, University of Massachusetts Boston*

2017-2019 EHS 490, Exercise and Health Sciences Internship  
EHS 230, Strength and Conditioning  
Pediatric Exercise Development (Course Development)

### *Community Seminar Series*

Spring 2022 The Impact of Cutting Physical Activity Opportunities in Schools

Spring 2021 Stand Up Against Sitting Down: The Benefits of Sitting Less

Fall 2020 Active Aging: Using Exercise to Maintain Health Across the Lifespan

## **Service**

---

2022- Graduate Program Advisory Committee  
2020- Students Advising on Graduate Education (SAGE)  
2020-2022 Lifestyle Medicine Ambassador

### **Training and Certifications**

---

2022 University of Illinois Certificate in Foundations of Teaching  
2018 ACSM Exercise is Medicine Ambassador

### **Society Memberships**

---

2023-current American Society for Nutrition  
2023-current Society for Psychophysiological Research  
2018-current American College of Sports Medicine  
Midwest Chapter of ACSM (joined 2024)  
2022-2023 Society for Neuroscience  
2019-2020 North American Society for the Psychology of Sport and Physical Activity