

BIOGRAPHICAL SKETCH

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NAME: Matthew A. Stults-Kolehmainen, Ph.D., FACSM

eRA COMMONS USER NAME (credential, e.g., agency login): None

POSITION TITLE: Clinical Exercise Physiologist; Adjunct 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 <i>(if applicable)</i>	Start Date MM/YYYY	Completion Date MM/YYYY	FIELD OF STUDY
Hanover College, Hanover, IN	B.A.	08/1996	06/2001	Kinesiology / Psychology
University of Wisconsin-Milwaukee	M.S.	08/2001	05/2004	Human Movement Sciences
The University of Texas at Austin	Ph.D.	08/2004	08/2009	Kinesiology / Behavioral Health
Yale University, New Haven, CT	n/a	01/2012	07/2014	Exercise Science / Psychology (Post-doc)
Teachers College, Columbia University	n/a	07/2014	07/2015	Applied Physiology (Post-doc)

A. Personal Statement

I am a clinical exercise physiologist in the Yale Bariatric and Minimally Invasive Surgery program at Yale – New Haven Hospital. As such, I am an expert in applied exercise science and kinesiology with my main responsibilities centering on helping patients to improve their physical activity behaviors. I was a postdoctoral associate at the Yale Stress Center (Yale School of Medicine) and a postdoctoral fellow at Teachers College, Columbia University, where I continue to teach in the Applied Physiology Program. I also held an assistant professor (tenure-track) position in the Department of Kinesiology and Physical Education at Northern Illinois University in the Preventative and Rehabilitative Exercise Science Program, and I was an adjunct at Southern Connecticut State University in sports medicine. I am certified as an Exercise Physiologist (EP-C) from the American College of Sports Medicine, where I am also a Fellow (FACSM). I am an expert in the development, implementation and evaluation of physical activity interventions for adults and special populations. I have expertise in the assessment of body composition, fitness and physical activity levels in adults of all ages and in children, including ample experience in assessing movement and energy expenditure parameters with pedometry and accelerometry. I have published in well-established peer reviewed journals (e.g., Obesity; Sports Medicine; Medicine and Science in Sports and Exercise) on the topics of motivation, obesity, stress/mental health, physical activity behavior, exercise recovery, muscular performance, and functional capacity.

At the current time, my primary focus is on: 1) enhancing motivation to be physically active / expend energy and 2) the influence of stress on behavioral inhibition and activation of physical activity. In my current position as clinical exercise physiologist, I collaborate extensively with the surgeons in the program, including Drs. John Morton (former president, ASMBS), Saber Ghiassi, Andrew Duffy, Lee Ying and others. I continue to collaborate with Dr. Rajita Sinha at the Yale Stress Center (Department of Psychiatry) and Dr. Garrett Ash, providing important contributions to their studies on health behaviors and physical activity. Several of my recently published manuscripts investigate obesity, its variation in the population and the role of psychology in managing obesity and fitness. In recent investigations with Dr. Rajita Sinha, Dr. Lee Ying and Dr. Joseph Ciccolo, I have been a

collaborating investigator providing expertise in intervention design, implementation of clinical trials, data collection and interpretation of physical activity assessments, data reduction of accelerometry, analysis, and interpretation.

For the proposed R01 project, I will act as an expert in the areas of: 1) measurement of fitness, physical activity, and exercise, 2) implementation of clinical exercise training. Specifically, I will help to select assessments and develop protocols so procedures with the Beat PD Today team will be standardized. I will train and supervise research assistants. I will assist with data reduction, analysis and interpretation. My most relevant manuscripts in this endeavor are listed below.

Citations:

1. Cutter, C. J., Schottenfeld, R.S., Moore, B.A., Ball, S.A., Beitel, M., Savant, J.D., **Stults-Kolehmainen, M.**, Doucette, C., Barry, D.T. (2014). A pilot trial of a videogame-based exercise program for methadone maintained patients. *Journal of Substance Abuse Treatment*. 7(4), 299-305. doi: 10.1016/j.jsat.2014.05.007.
2. Jastreboff, A., Chaplin, T., Finnie, S., Savoye, M., **Stults-Kolehmainen, M.**, Silverman, W. & Sinha, R. (2018). Preventing Childhood Obesity through a Mindfulness-Based Parent Stress Intervention: A Randomized Pilot Study. *The Journal of Pediatrics*, 202, 136-142.
3. de Sousa, A. F. M., Medeiros, A. R., Benitez-Flores, S., Del Rosso, S., **Stults-Kolehmainen, M.** & Boullosa, D. A., (2018). Improvements in attention and cardiac autonomic modulation after a 2-weeks sprint interval training program: A fidelity approach. *Frontiers in Physiology*, 9, 241.

B. Positions, Scientific Appointments and Honors

Positions and Scientific Appointments:

2021-Present: Adjunct Associate Professor, Applied Physiology, Teachers College Columbia University, New York, NY

2015-Present: Clinical Exercise Physiologist, Yale – New Haven Hospital, New Haven, CT

2014 Present: Research Associate Affiliate, Yale Stress Center, Yale University, New Haven, CT

2014-2021: Adjunct Assistant Professor, Applied Physiology, Teachers College Columbia University, New York, NY

2014-2015: Postdoctoral Associate, Applied Physiology, Teachers College Columbia University, New York, NY

2012-2014: Postdoctoral Associate and Clinical Faculty, Yale Stress Center, Yale University, New Haven, CT

2009-2011: Assistant Professor, Northern Illinois University, De Kalb, IL – Department of Kinesiology and Physical Education

2006-2009: Teaching Assistant, University of Texas at Austin – Department of Kinesiology and Health Education

2004-2008: Graduate Research Assistant, University of Texas at Austin – Fitness Institute of Texas / Department of Kinesiology and Health Education

2003-2004: Fulbright Fellow, University of Jyväskylä, Finland – School of Sports Sciences

Clinical Licenses and Certifications

2002-Present: Exercise physiologist – credentialed – American College of Sports Medicine

Honors

2021 Fellow of the American College of Sports Medicine (FACSM)

2020 All for One Award & Medallion, Yale – New Haven Hospital

2020 COVID-19 Recognition Award, Yale – New Haven Hospital

2017 Honorary Keynote Award - Associação Brasileira do Psicologia do Esporte, Brasilia

2015 First place poster - Greater New York chapter - American College of Sports Medicine

2012-2014 NIDDK / NIH Loan Repayment Program

2010 Poster of the Year – Society for Behavioral Medicine

2008 Honorable Discharge – United States Marine Corps

2003	Fulbright Fellowship (Finland)
2001	George Zirkle Distinguished Award in Psychology
2000	Richter Grant (Hanover College; award to collect data in California for a semester)

C. Contributions to Science

Total: 41 Publications (not including 6 original research papers additionally under review)

1. Motivation for physical activity, exercise and sedentarism

My earliest research experiences were in studying motivation for exercise and sport. My 2013 publication on feelings of relatedness (i.e., closeness with others) and their impact on motivation was from my undergraduate honors thesis at Hanover College. As a post-doctoral associate at Yale Medical School, I worked with Rajita Sinha and others to develop a scale to measure desires (i.e., state motivation) for movement and sedentary behavior. We are currently recognized as being the originators of the concept of *affectively-charged motivation states* (ACMS) in physical activity and exercise, the first abstract of which was published in 2015. The articles above plus those below offer some insight into this work.

- a. **Stults-Kolehmainen, M.**, Blacutt, M., Bartholomew, J. B., Gilson, T. A., Ash, G. I., McKee, P. C. & Sinha, R. (2020). Motivation States for Physical Activity and Sedentary Behavior: Desire, Urge, Wanting and Craving. *Frontiers in Psychology*. 11:568390 doi: 10.3389/fpsyg.2020.568390.
- b. **Stults-Kolehmainen M.**, Blacutt, M., Fogelman, N., Gilson, T.A., Stanforth, P.R., Divin, A.L., Bartholomew, J.B., Filgueiras, A., McKee, P.C., Ash, G.I., Ciccolo, J.T., Brotnow Decker, L., Williamson, S.L. and Sinha, R. (2021). Measurement of Motivation States for Physical Activity and Sedentary Behavior: Development and Validation of the CRAVE Scale. *Frontiers in Psychology* 12:568286. doi: 10.3389/fpsyg.2021.568286
- c. **Stults-Kolehmainen, M.**, Blacutt, M., Bartholomew, J.B., Boullosa, D., Janata, P., Koo, B.B., McKee, P.C., Casper, R., Budnick, C.J., Gilson, T.A., Blakemore, R.L., Filgueiras, A., Williamson, S.L., SantaBarbara, N., Barker, J.L., Bueno, F.A., Heldring, J. & Ash, G.I. (2022). Urges to Move and other Motivation States for Physical Activity in Clinical and Healthy Populations: A Scoping Review Protocol. *Frontiers in Psychology*, 13:901272. doi: 10.3389/fpsyg.2022.901272

2. The effects of psychological stress on health and health behaviors

In my post-doctoral training, I focused on the link between psychological stress and health behaviors, primarily physical activity and exercise, specifically. I found that psychological stress has a more complicated relationship with physical activity than previously document by empirical evidence. In short, exercise may decrease, increase or stay the same during periods of stress. Furthermore, this relationship is modified by habit of the health behavior whereas those with strong habits for exercise perform this behavior more undress stress, but those with weaker habit strength exhibit less exercise behavior when strained. One study from my dissertation investigated the effect of stress on perceptions during exercise. It is well known that pleasure during exercise predicts future exercise behavior. My own data demonstrates that those who are stressed experience less pleasure during exercise, but also less of other sensations as well. This may help to explain how stress has an impact on long-term exercise adherence.

- a. Lutz, R. S., **Stults-Kolehmainen M. A.** & Bartholomew, J. B. (2010). Exercise Caution when Stressed: Stages of Change and the Stress – Exercise Participation Relationship. *Journal of Sport and Exercise Psychology*, 11(6), 560-567.
- b. **Stults-Kolehmainen, M. A.** (2013). The interplay between stress and physical activity in the prevention and treatment of cardiovascular disease. *Frontiers in Physiology: Clinical and Translational Physiology* 4(Article 346).
- c. **Stults-Kolehmainen, M.** & Sinha, R. (2014). The effects of stress on physical activity and exercise. *Sports Medicine (Auckland, NZ)*. 4(1), 81-121.
- d. **Stults-Kolehmainen, M.**, Lu, T., Ciccolo, J., Bartholomew, J.B. Brotnow, L. & Sinha, R. (2016). Higher chronic psychological stress is associated with blunted affective responses to strenuous resistance exercise: RPE, pleasure, pain. *Psychology of Sport and Exercise*, 22, 27-36.

3. The effects of psychological stress on muscular recovery, fitness and performance

The focus of my dissertation was on physiological and psychological recovery from exercise and how stress may impact these processes of adaptation. Essentially, I was interested in physical stress by psychological stress interactions. We created highly standardized protocols to induce physical stress in a sample of students reporting high levels of perceived stress and compared them to students reporting very low levels of stress. This is considered a very novel approach to the investigation of how chronic stress may impact physiological outcomes. We also collected cytokine data (unpublished), which showed that that psychological stress was related to blunted immune responses.

a. Bartholomew, J. B., **Stults-Kolehmainen M. A.**, Elrod, C. C., & Todd, J. S. (2008). Strength Gains Following Resistance Training: The Effect of Stressful, Negative Life Events. *Journal of Strength and Conditioning Research*, 22(4), 1215-1221.

b. **Stults-Kolehmainen, M.** & Bartholomew, J. B. (2012). Psychological stress impairs short-term muscular recovery from resistance exercise. *Medicine & Science in Sport & Exercise*, 44(11), 2220-2227.

c. Morgan, P. M., Salacinski, A. J. & **Stults-Kolehmainen, M.** (2013). The acute effects of flotation restricted environmental stimulation technique on recovery from maximal eccentric exercise. *Journal of Strength and Conditioning Research*, 27(12), 3467-3474.

d. **Stults-Kolehmainen, M.**, Bartholomew, J. B. & Sinha, R. (2014). Chronic psychological stress impairs recovery of muscular function and somatic sensations over a 96 hour period. *Journal of Strength and Conditioning Research*. 28(7):2007-2017.

4. Clinical trials and other studies investigating the benefits of exercise and physical activity for stress and mental health

More recently, I have begun to implement exercise interventions to improve mental health outcomes for those who are under inordinate stress and/or experiencing depression. I am currently a consultant on a multi-year R01 (Yale Medical School, Sinha, R., PI) exploring the effects of mindfulness meditation + nutrition and physical activity in parent/child dyads. This project is collecting follow up data currently.

a. Naves-Bittencourt, W., Fernandez-de-Sousa, A., **Stults-Kolehmainen, M.**, Fontes, E., Cordova, C., Demarzo, M. & Boullosa, D. (2015). Martial arts: Mindful exercise to combat stress. *European Journal of Human Movement*, 34, 34-51.

b. Busch, AM, Ciccolo, JT, Puspitasari, AJ, Nosrat, S., Whitworth, JW, & **Stults-Kolehmainen, M.** (2016). Preferences for Exercise as a Treatment for Depression. *Mental Health and Physical Activity*, 10, 68-72.

c. Jastreboff, A., Chaplin, T., Finnie, S., Savoye, M., **Stults-Kolehmainen, M.**, Silverman, W. & Sinha, R. (2018). Preventing Childhood Obesity through a Mindfulness-Based Parent Stress Intervention: A Randomized Pilot Study. *The Journal of Pediatrics*, 202, 136-142.

5. Differences in obesity and bone density using Dual-Emission XRAY (DXA)

Very early in my doctoral studies I started collecting DXA data to look at variations in regional distribution of body fat. This has a link to my stress research because redistribution of body fat to the gut area is related to chronic stress. I personally conducted several thousand DXA scans for body fat and bone density.

a. **Stults-Kolehmainen M. A.**, Stanforth, P. R. & Bartholomew, J. B. (2012). Fat in Android, Trunk, and Peripheral Regions Varies by Ethnicity and Race in College Aged Women. *Obesity*, 20(3), 660-665.

b. **Stults-Kolehmainen, M.**, Stanforth, P. R., Abolt, C. J., Bartholomew, J. B. & Lu, T. (2013). DXA Estimates of Fat in Abdominal, Trunk and Hip Regions Varies by Ethnicity in Men. *Nutrition and Diabetes*. 3(3): e64

c. Stanforth, P. R., Crim, B., Stanforth, D. & **Stults-Kolehmainen, M.** (2014). Body composition changes among female collegiate athletes across the competitive season and over multiple years. *Journal of Strength and Conditioning Research*, 28 (2), 300-307.

d. Stanforth, D., Lu, T., **Stults-Kolehmainen, M. A.**, Crim, B. N. & Stanforth, P.R. (2016). Bone mineral and density changes among female collegiate athletes across a season and three years. *Journal of Strength and Conditioning Research*, 30 (10), 2828-2838.

Complete List of Published Work in My Bibliography

<https://www.ncbi.nlm.nih.gov/pubmed/?term=stults-kolehmainen>

