

Megan E. Holmes, Ph.D.

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Education

Michigan State University, August 2006 to December 2011

Doctor of Philosophy Degree: Kinesiology

Concentration: Exercise Physiology

Internal cognate: Epidemiology and Behavior of Physical Activity

External cognate: Epidemiology

Dissertation: *Physical Activity and Fitness: Moderators of the Stress-Metabolic Syndrome Relationship?*

Iowa State University, August 2004 to May 2006

Master of Science Degree: Exercise and Sport Science

Emphasis: Biological Basis of Physical Activity/Exercise Physiology

Thesis: *Physical Activity, Stress, and the Metabolic Syndrome in 8-18 yr old Boys.*

University of Nebraska at Kearney, August 1999 to May 2004

Bachelor of Science Degree: Comprehensive Major in Exercise Science

Emphasis: Sports Nutrition

Internship: *University of Nebraska at Kearney – Human Performance Lab*

Professional Experience

Teaching

August 2011 to present

Mississippi State University

Assistant Professor

- Course Instructor- EP 3233 Anatomical Kinesiology
- Course Instructor- EP 3643 Applied Anatomy and Pathophysiology
- Course Instructor- EP 4113 Fitness Programs and Testing
- Course Instructor- EP 4603 Physical Activity Epidemiology
- Course Instructor- EP 4183 Exercise and Weight Control
- Course Instructor- EP 8323 Science and Practice of Cardiopulmonary Rehabilitation
- Course Instructor- KI 8303 Research in Kinesiology
- Course Instructor- KI 8990 Special Topics in Kinesiology – Pediatric Exercise Physiology

January 2011 to May 2011

Michigan State University

Instructional Staff

- Course Instructor- KIN 216 Applied Human Anatomy Lecture

August 2010 to May 2011

Lansing Community College

Adjunct Faculty

- Course Instructor- KIN 121 Healthy Lifestyles
- Course Instructor- KIN 270 Growth and Motor Development

August 2006 to August 2010

Michigan State University

Graduate Teaching Assistant

- Course Instructor- KIN 217 Applied Human Anatomy Cadaver Lab –Responsible for course lecture, facilitation and assessment of course material, and supervision of undergraduate staff
- Course Instructor- KIN 310 Physiological Basis of Physical Activity –Instructed upper level, undergraduate kinesiology students in general exercise physiology concepts and applications
- Course Instructor- KIN 121 Healthy Lifestyles– Created and presented lecture and testing materials, organized a special topics lecture series
- Lab Instructor- KIN 411 Lab Techniques in Exercise Physiology– Instructed senior level, undergraduate kinesiology students in general exercise lab techniques for fitness assessment and exercise prescription
- Course Instructor- KIN 216 Applied Human Anatomy Lecture– Responsible for course lecture, facilitation and assessment of course material, and supervision of undergraduate staff

August 2004 to May 2006

Iowa State University – Department of Health and Human Performance

Graduate Teaching Assistant

- Course Instructor - Disciplines and Professions in Health and Human Performance
- Course Instructor- Activity classes (volleyball and weight training)

Research

August 2011 to present

Mississippi State University – Department of Kinesiology

Assistant Professor

- Lead researcher and project coordinator for ‘*Studio School*’, a grass roots school reform effort. Studio School enrolls groups of at-risk students into its summer and school year follow-up drop-out prevention, educational activities. The goal of Studio School is to reengage the disengaged into academic learning by attaching that learning to dynamic making-&-doing-design-projects. The making-&-doing-projects infuse physical activity and movement into the campers Science and Math academic learning. Anthropometric, psychosocial, and physical activity assessments are conducted during the camp and at subsequent follow up intervals.

- Lead researcher and project coordinator for *'Biomechanics of High School Track and Field Athletes'* project. This project examines the kinetics and kinematics of high school level track and field participants with particular focus on the influence of gender, maturity, and experience level. This project also acts as a service outreach effort for the Department of Kinesiology, as a large portion of time is spent discussing the science behind the sport with the project participants.

August 2006 to May 2011

Michigan State University – Departments of Kinesiology and Epidemiology

Graduate Research Assistant

- Project coordinator for *'Physical Activity and Fitness: Moderators of the Stress-Metabolic Syndrome Relationship?'* and related volunteer effort, collectively referred to as *'Partnership with MSU-Kinesiology and ELPS-Physical Education.'* In addition to the research, this project required organization of research staff members for weekly visits to the school where the research was being conducted to volunteer in the physical education classes and homeroom to develop a relationship with our participants.
- Project coordinator for pedagogy research project: *'Getting the feel for anatomy: Instructing the visually impaired in a cadaver laboratory: A case study.'* This project required observation and journaling of how Cadaver Lab was administered to a visually impaired student. Additionally, the student was interviewed at the close of the course to document her perspective. This interview will be transcribed and synthesized with the journal material with the intent of publishing this experience in a peer-reviewed journal.
- Organization and analysis of data from the Michigan Action for Healthy Kids Coalition Student Health Survey. Pilot data was collected from two mid-Michigan high schools and was analyzed for a manuscript examining variables characteristic of a healthy lifestyle. This data was also used to develop the Student Health Survey (SHS). SHS was made available to all school districts in Michigan using an online surveillance tool. SHS data is used to provide feedback to individual schools and address any needed adjustments to the survey instrument.
- Assisted with an accelerometer validation project which examined commonly used accelerometers and metabolic equivalency (MET) conversion equations. Responsible for participant recruitment and retention, scheduling, data collection, processing, and analysis.
- Assisted with the Michigan Fisheaters Organochlorines in two Michigan Cohorts (OSSM) project. Responsibilities included data collection relevant to dietary history, physical activity, and other lifestyle factors as well as venous blood draw and various anthropometric measurements, abstraction of data from medical records, and data analysis.

August 2004 to July 2006

Iowa State University – Department of Health and Human Performance

Graduate Research Assistant

- Assisted in various research projects in the area of exercise physiology. Projects included: physical activity, stress, and the metabolic syndrome in 8-18 yr old boys; stress reactivity and metabolic syndrome in adolescent males; sleep duration and overweight status in children and adolescents; association between calcium intake and adiposity in 9-12 yr olds; associations between physical activity, blood pressure, and waist circumference in young children; SWITCH project – a pediatric obesity prevention project; exercise psychology projects examining core temperature and affect in obese and normal weight women; and hydration/rehydration research examining efficacy of various beverages in rehydration
- Utilized ELISA technique in analysis of salivary cortisol, testosterone, and serum inflammatory markers (IL-10, etc.)
- Familiar with CorTemp core temperature analysis software and assessment tools
- Experienced with standard anthropometry techniques and their application in pediatric studies as well as general exercise physiology lab techniques.

August 2003 to July 2004

University of Nebraska at Kearney – Human Performance Lab

Lab Assistant and Adult Fitness Program (AFP) Coordinator

- Assisted in the UNK Walking School Bus physical activity intervention study.
- Conducted dietary assessment component of the study. This required distribution, collection, coding, and analysis of nutritional surveys and physical activity monitors.
- Coordinated the University's Adult Fitness Program
- Performed initial fitness testing, personalized exercise prescription, progress reports, personal training, and follow-up fitness assessments. Also responsible for promotion of fitness classes and activities sponsored by AFP.

Other Relevant Areas of Experience

Manuscript reviewer

Journal of Physical Activity and Health (2007 to present)

International Journal of Exercise Science (2011 to present)

Preventive Medicine (2012 to present)

Pediatric Exercise Science (2013 to present)

PLOS ONE (2014 to present)

Evaluation and Program Planning (2014 to present)

Medicine and Science in Sport and Exercise (2016 to present)

Michigan State University

Prosector and lab supervisor in cadaver lab

- Supervised students enrolled in prosection course
- Worked on unique dissections to highlight interesting views of various joints, neurovasculature, and organs
- Basic dissection and specimen preparation for the MSU-affiliated medical schools

Michigan State University/Adrian College (May to August 2008)

Supervised internship experience, L Smith

- Explained and discussed research process with student
- Familiarized and developed background knowledge of student with ongoing projects
- Developed general exercise physiology lab techniques
- Discussed post graduation options and developed curriculum vitae and personal statement
- Smith successfully completed her BS degree at Adrian College and MS degree at Michigan State University and is currently acting as the Clinical Exercise Physiologist at the Helen DeVos Children's Hospital Healthy Weight Center.

Iowa State University (November 2005 to August 2006)

Mentor to McNair Scholar, Yi Coil

- Explained and discussed research process with student
- Familiarized student with ongoing projects and relevant lab techniques
- Developed background knowledge on project area
- Helped student develop project to be presented at national conference
- Coil successfully completed her BS degree at Iowa State University and MS degree at Michigan State University and MBA at Iowa State University

Publications

Book Chapters

Holmes, ME. Physical Activity, Stress, and Obesity. in *Handbuch Stressregulation und Sport* (eds. Fuchs, R. & Gerber, M.) 1-17 (Springer Berlin Heidelberg, Berlin, Heidelberg, 2017)

Holmes, ME. Physical Activity Epidemiology. Brown, SP (ed.) in Fundamentals of Kinesiology. 2013. Kendal Hunt. Dubuque, IA.

Manuscripts

Holmes ME, Pivarnik JM, Pfeiffer KA, Eisenmann JC, Ewing M. The Stress-Metabolic Syndrome Relationship in Adolescents: Potential Moderation by Physical Activity. (Journal of Physical Activity and Health, 2016;13: 1088-1093)

Knight AC, **Holmes ME,** Chander H, Kimble A, Stewart JT. Assessment of balance among adolescent track and field athletes. (Sports Biomechanics, 2016; 15:169-179)

Smith JW, **Holmes ME,** McAllister MJ. Nutritional Considerations for Performance in Young Athletes. (Journal of Sports Medicine, 2015, Article ID 734649; 13 pages)

Hill EE, Eisenmann JC, Gentile D, **Holmes ME,** Walsh, D. The Association between Morning Cortisol and Adiposity in Children Varies by Weight Status. (Journal of Pediatric Endocrinology & Metabolism, 2011; 24: 709-713)

Hill EE, Eisenmann JC, **Holmes ME,** Heelan, KA. Morning Cortisol is Not Associated with Truncal Fatness or Resting Blood Pressure in Children: Cross-Sectional and 1-2 Year Follow-Up Analyses. (Journal of Pediatric Endocrinology & Metabolism, 2010; 23: 1031-1037)

Holmes ME, Ekkekakis P, Eisenmann JC. The Physical Activity, Stress, and Metabolic Syndrome Triangle: A Guide to Unfamiliar Territory for the Obesity Researcher. (*Obesity Reviews*, 2010; 11: 492-507) **Featured on MDLinx*

Holmes ME, Eisenmann JC, Heelan KA. The Association Between Calcium Intake and Adiposity in 9-12 yr old Children. (*International Journal of Body Composition Research*, 2009; 7: 1–6)

Holmes ME, Eisenmann JC, Ekkekakis P, Gentile D. Physical activity, Stress, and the Metabolic Syndrome in 8-18 yr old Boys. (*Journal of Physical Activity and Health*, 2008; 5: 295-308)

Eisenmann JC, Ekkekakis P, **Holmes ME**. Sleep Duration, Overweight, and Waist Circumference in 7-15 Year Old Youth. (*Acta Paediatrica*, 2006; 95: 956-963)

Holmes, ME. Protein and Its Effects on Metabolism. (*UNK Journal of Undergraduate Research*, 2003: 16-23)

Presentations

June 2017, ACSM 64th Annual Meeting

Holmes ME, Wood KE, Brocato K. Physical Activity Levels of 7th and 8th Graders Participating in a Studio-Based Learning Experience. (Poster Presentation)

August 2016, NASPEM Bi-Annual Meeting

February 2016 SEACSM Annual Meeting

Wood KE, **Holmes ME**, Brocato K, Smith JW. Adolescent Stress, Coping Resources, and Health in High Risk Students Participating in a Studio Based Learning Summer Camp. (Poster Presentation)

February 2015, SEACSM Annual Meeting

In symposium: Getting Children Moving in Many Ways and for Many Reasons. The Role of Physical Activity in Cognitive and Psychosocial Developmental

February 2015, SEACSM Annual Meeting

Stewart T, Brown J, Kimble A Chander H, **Holmes ME**, & Knight AC. Balance Performance with the Eyes Closed in High School Track and Field Athletes. (Poster Presentation)

February 2015, SEACSM Annual Meeting

Kimble A, Brown J, Stewart T, Chander H, Holmes ME, & Knight AC. Balance Performance with the Eyes Open in High School Track and Field Athletes. (Poster Presentation)

February 2015, SEACSM Annual Meeting

Chander H, Morris CE, Wilson SJ, Knight AC, **Holmes ME**, Wade C & Garner JC. Impact of Alternative Footwear on Balance Perturbations. (Poster Presentation)

February 2015, SEACSM Annual Meeting

DeBusk H, Chander H, Morris CE, Wilson SJ, Knight AC, **Holmes ME**, Hill CM, Wade C & Garner JC. The Effect of Commonly Used Alternative Footwear on Balance. (Poster Presentation)

February 2015, SEACSM Annual Meeting

Hill CM, Chander H, Morris CE, Wilson SJ, Knight AC, **Holmes ME**, DeBusk H, Wade C & Garner JC. Impact of Low Intensity Workload on Muscle Exertion in Alternative Footwear. (Poster Presentation)

October 2014, 7th Annual National Mentoring Conference

Brocato K, **Holmes ME**, Knight A. Mississippi State University College of Education Faculty Mentors: Embracing a Studio Based Learning Model.

June 2014, ACSM 61st Annual Meeting

In symposium: The power of play: Influences on motor development, fitness and physical activity and sport participation. Physical, Developmental, and Social Aspects of Play and Physical Activity

June 2014, ACSM 61st Annual Meeting

Early Career: R1 vs R2 vs R3 – What's the Difference and What Are the Expectations of an Assistant Professor at Each?

June 2013, ACSM 60st Annual Meeting

Holmes ME, Pfeiffer KA, Eisenmann JC, Ewing M, Pivarnik JM. The Stress-Metabolic Syndrome Relationship in Adolescents: Potential Moderation by Physical Activity. (Poster Presentation)

February 2013, SEACSM Annual Meeting

Cooksey KD, **Holmes ME**, and Brocato DK. Physical Activity Levels of 7th and 8th Graders Participating in a Studio-Based Learning Summer Camp. (Poster Presentation)

June 2010, ACSM 57th Annual Meeting

Holmes ME, Suton D, Dithurbide L, Pivarnik JM. Physical Activity Moderates the Anxiety-Adiposity Relationship in High School-Aged Youth. (Slide Presentation)

June 2010, ACSM 57th Annual Meeting

Hill EE, Eisenmann JC, **Holmes ME**, Gentile D, Walsh D. Independent and combined influence of physical activity and sleep on waking cortisol in children. (Poster Presentation)

September 2008, NASPEM Annual Meeting

Holmes ME, Bauer PW, Knous JL, Ode JJ, Pivarnik JM. Prevalence of healthy behaviors in Michigan high school students. (Poster Presentation)

June 2008, ACSM 55th Annual Meeting

Holmes ME, Eisenmann JC. Anxiety and metabolic syndrome in normal and overweight youth. (Slide Presentation)

June 2008, ACSM 55th Annual Meeting

Coil YI, **Holmes ME**, Eisenmann JC. Cardiovascular reactivity, physical activity, and metabolic syndrome in youth. (Poster Presentation)

October 2007, MWACSM Annual Meeting

Holmes ME, Eisenmann JC. Anxiety and metabolic syndrome in normal and overweight youth. (Poster Presentation)

October 2007, MWACSM Annual Meeting

Coil YI, **Holmes ME**, Eisenmann JC. Physical activity, cardiovascular reactivity, and metabolic syndrome in youth. (Slide Presentation)

June 2007, ACSM 54th Annual Meeting

Holmes ME, Eisenmann JC, Ekkekakis P, Gentile D. Physical activity, stress, and the metabolic syndrome in 8-18 yr old boys. (Thematic Poster Presentation)

October 2006, MWACSM Annual Meeting

Slide Presentation, Best Masters Research Oral Presentation

Holmes ME, Eisenmann JC, Ekkekakis P, Gentile D. Physical activity, stress, and the metabolic syndrome in 8-18 yr old boys.

July 2006, 12th Annual SAEOPP/UTK McNair National Scholars Research Conference

First place – Biological sciences division (Slide Presentation)

Coil YI, **Holmes ME**, Eisenmann JC. Cardiovascular reactivity in overweight and normal weight 8-18 yr old boys.

June 2006, ACSM 53rd Annual Meeting

Holmes ME, Eisenmann JC, Heelan KA. Associations between physical activity, waist circumference and blood pressure in 3-8 yr old children (Slide Presentation)

October 2005, NAASO 2005 Annual Scientific Meeting

JC Eisenmann, P Ekkekakis, **ME Holmes**. Sleep Duration, Overweight, and Waist Circumference in 7-15 Year Old Youth.

June 2005, 2nd Annual conference for the International Society of Sports Nutrition

Second place in the Student Poster Competition

Holmes ME, Eisenmann JC, Johannsen D, Heelan KA. The association between calcium intake and adiposity in 9-12 yr old children. Journal of the International Society of Sports Nutrition. 2(1):1-2, 2005.

May 2004, UNK Student Research Day

Received honorable mention in poster competition

Holmes ME, McFarland S, Heelan KA. Association between physical activity and food choices among 4th and 5th grade children. (Poster Presentation)

Invited Presentations

Starkville Oktibbeha School District School Board Meeting, September, 2015. Reported on Service and Research efforts of Studio School/ Generation S Project. Greensboro Center, Starkville, Mississippi

Northeast Mississippi Association of Health Underwriters Annual Meeting. "Worksite Wellness: A Business Case & Basic Strategies for Implementation" April, 2013, Hunter Henry Center, Mississippi State University

City of Starkville Alderman Meeting, February, 2013. Reported on Service and Research efforts of Studio School Project. Starkville City Hall, Starkville, Mississippi

ACCESS: Cognitive Science Research Forum. Department of Psychology, Mississippi State University. "Physical Activity and Fitness: Moderators of the Stress Metabolic Syndrome Relationship?" January, 2012.

International Society of Sports Nutrition 6th Annual Meeting. New Orleans, LA. Symposium on the special considerations in pediatric exercise physiology and beverage choices for the young athlete. June, 2009.

Leeds Metropolitan University, Leeds, UK. Carnegie Research Institute (CRI) seminar series "Physical activity, stress, and the metabolic syndrome in youth." March, 2008.

Loughborough University, Loughborough, UK. "Physical activity, stress, and the metabolic syndrome in youth." March, 2008.

Twin Cities Cross Country Camp. Scottsbluff, Nebraska. Roundtable discussion on macronutrients as they relate to endurance athletes. July, 2002.

Awards

Mississippi State University

2015 American Education Research Association Leadership for Social Justice Bridge Award

Student Achievements

Mississippi State University Undergraduate Student Researcher of the Year, College of Education, Katherine Wood

SEACSM Annual Meeting, February 2015, Amari Kimble, Honorable Mention – Student Poster Competition

Seventh Annual College of Education Faculty/Student Research Forum, April 2014,
Mallory Kvasnicka, Third Place – Graduate Student Poster Competition

Sixth Annual College of Education Faculty/Student Research Forum, April 2013, Kurt
Cooksey, First Place – Undergraduate Student Poster Competition

Michigan State University

Excellence in Teaching Award – College of Education, 2010
Best Masters Research Slide Presentation – MWACSM, 2006
Doctoral Recruitment Scholarship – College of Education, 2006

Iowa State University

Outstanding Masters Student – Health and Human Performance Department
Second Place – Student Poster Competition, ISSN, 2005

University of Nebraska at Kearney

2002-2003 NCAA Academic All-American
Honorable mention – UNK Student Research Day, 2004
3-time RMAC All-Conference Academic Team
3 semesters on the Dean's List
7 semesters on the Athletic Director's Honor Roll

Grantsmanship

International Tennis Federation. "Influence of tennis participation of parameters of health."
\$5,000. (Funded)

Blue Cross Blue Shield of Mississippi Foundation for continuation of MSU on the Move
\$62,944.97 (Funded)

Center for the Advancement of Service Learning Excellence (CASLE) for Starkville-Studio School
Human Body Science Summer Camp 2013. \$3500 (Funded)

Starkville-Oktibbeha County Achieving Results (SOAR) for Starkville-Studio School Human Body
Science Summer Camp 2013 \$1000 (Funded)

Appalachian Regional Commission Grant "Studio School Summer Camp 2012" \$26,174 (Funded)

Cross College Research Grant Award. "Exercise is Medicine on Campus Program and Program
Evaluation." \$2,000. (Funded)

Blue Cross Blue Shield Foundation of Michigan Student Award Program. "Examination of physical
activity and physical fitness as possible moderators of the relationship between stress and
metabolic syndrome in adolescents." \$3,000. (Funded)

College of Education Dissertation Research Grant. "Examination of physical activity and physical
fitness as possible moderators of the relationship between stress and metabolic syndrome in
adolescents." \$5,000. (Funded)

CDC Grants for Public Health Research Dissertation (R36), Opportunity number PAR-07-231
“Examination of physical activity and physical fitness as possible moderators of the relationship between stress and metabolic syndrome in adolescents.” \$35,000. (No projects were funded in 2010 due to budgetary restrictions)

Awarded travel funds to offset costs of travel to UK to present in seminar series at Leeds Metropolitan and Loughborough Universities. Department of Kinesiology, Colleges of Education and Graduate Studies, and International Studies Program. Spring 2008, Total awarded \$1150

College of Education Summer Research Fellowship. “Examining physical activity and obesity interventions in Michigan schools: Preliminary analysis of baseline data.” Fall 2007, \$6000 (Funded)

Professional Affiliations

American Association of University Women (2016-present)
American College of Sports Medicine (2007-present)
Southeast Chapter of the American College of Sports Medicine (2011- present)
Midwest Chapter of the American College of Sports Medicine (2006-2011)
International Society of Sports Nutrition (2004-present)
North American Society for Pediatric Exercise Medicine (2004-present)

Other Activities

Mississippi State University

Starkville Foundation for Public Education
GoPlay Initiative, Research and Evaluation Consultant
Playful City Initiative, Research and Evaluation Consultant
Starkville High School and Middle School, Track and Field Boys and Girls Assistant Coach—Throws

Michigan State University

Kinesiology Graduate Student Organization (KGSO)
Exercise Physiology Representative (2006-2007)
Curriculum Committee Representative (2008-2009)
Intramural Sports – volleyball
YMCA Women’s and Co-ed volleyball leagues
COGS Graduate student softball league
YMCA Volunteer – Downtown Wellness Center After School Program

Iowa State University

HHP Graduate Student Association – Social Chair, Finance Committee
Women in Science and Engineering – Lab tours promoting various aspects of kinesiology
Part-time job – Dishwasher in nucleic acids lab
Intramural Sports – indoor soccer, volleyball

Ames Park and Recreation – sand volleyball, softball

University of Nebraska at Kearney

Women's Track and Field Team

2002-2003 Co-Captain

4-time Varsity Letter Winner

2 Rocky Mountain Athletic Conference (RMAC) Individual Titles

3-time NCAA National Qualifier

2-time RMAC All-Conference Team – Weight Throw

2-time RMAC All-Conference Team – Hammer Throw

Intramural Sports – volleyball