

William Todd Cade, PT, PhD

CURRICULUM VITAE

DATE 05/20/2019

CITIZENSHIP USA

CONTACT INFORMATION

Work: Program in Physical Therapy
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PRESENT POSITION Associate Director, Post-Doctoral Fellowships
Program in Physical Therapy
Professor
Program in Physical Therapy & Department of Medicine
Washington University School of Medicine

EDUCATION

1991	BS	Kinesiological Science	University of Maryland, College Park, MD
1994	MS	Physical Therapy	University of Miami, Coral Gables, FL
2002	PhD	Rehabilitation Science	University of Maryland, Baltimore, MD
2002-2005		Fellowship-Endocrinology/Metabolism	Washington University, St. Louis, MO
2015		Certificate-Academic Medical Leadership Program for Physicians & Scientists	Washington University, St. Louis, MO

ACADEMIC POSITIONS/EMPLOYMENT

1995-1997	Physical Therapist, Veterans Administration Medical Center, Baltimore, MD
1995-2002	Physical Therapist, MedStar Home Health Care, White Marsh, MD
1998-2002	Graduate Research Assistant, Department of Physical Therapy & Rehabilitation Science, University of Maryland School of Medicine, Baltimore, MD
2002-2005	Postdoctoral Research Fellow, Division of Endocrinology, Metabolism & Lipid Research, Department of Medicine, Washington University School of Medicine, St. Louis, MO Mentor: Kevin Yarasheski, PhD
2005-2006	Instructor, Program in Physical Therapy, Washington University School of Medicine, St. Louis, MO
2006-2012	Assistant Professor, Program in Physical Therapy & Department of Medicine, Washington University School of Medicine, St. Louis, MO
2012-2016	Associate Professor, Program in Physical Therapy & Department of Medicine, Washington University School of Medicine, St. Louis, MO
2015-present	Associate Director, Post-Doctoral Fellowships, Program in Physical Therapy, Washington University School of Medicine, St. Louis, MO
2016-present	Professor, Program in Physical Therapy & Department of Medicine, Washington University School of Medicine, St. Louis, MO

UNIVERSITY AND HOSPITAL APPOINTMENTS AND COMMITTEES

- 2006-present Washington University Diabetes Research Center (Member)
2006-present Washington University Nutrition and Obesity Research Center (Member)
2005-present Research Advisory Committee, Program in Physical Therapy, Washington University (Member)
2006, 2011 NIH K12 Planning Committee, Program in Physical Therapy, Washington University (Member)
2010-2014 Steven J. Rose Research Symposium and Alumni Day, Program in Physical Therapy, Washington University (Organizer)
2009-present Washington University Institute for Clinical and Translational Sciences (Member)
2010-2016 Clinical and Translational Research Funding Program, Barnes-Jewish Hospital Foundation and Washington University Institute of Clinical and Translational Sciences (Reviewer)
2012-present Washington University Musculoskeletal Research Center (Member)
2014 Washington University Clinical Research Training Center Office of Training Grants Mock Study Section (Reviewer)
2014, 2017 Facilitator, Program for Ethical and Responsible Conduct in Science and Scholarship (PERCSS) Workshop, Washington University
2014, 2017 Strategic Planning Committee, Program in Physical Therapy, Washington University
2014-present Washington University Center for Regenerative Medicine (Member)
2015-present Washington University Center for Cardiovascular Research (Member)
2018-2019 Faculty Search Committee, Program in Physical Therapy, Washington University (Member)
2018 Washington University Research Training Day (Poster Judge)
2019 Curriculum Renewal Team, Program in Physical Therapy, Washington University (Member)

CURRENT PHYSICAL THERAPY LICENSURE

Missouri #2003011614

HONORS and AWARDS

- 1993-1994 *Health Scholarship Award*, United States Veterans Administration (VA)
1999-2001 *Graduate School Merit Scholarship Award*, University of Maryland, Baltimore
2001 *Presidents Award*, American College of Sports Medicine, Mid-Atlantic Regional Chapter
2001 *Immunology Section Award: 1st runner up*, University of Maryland, Baltimore, Graduate Research Conference
2001-2003 *Graduate School Association Scholarship Award*, University of Maryland, Baltimore
2002 *Young Scientist Scholarship Award*, 4th International Workshop on Adverse Drug Reactions and Lipodystrophy in HIV, San Diego, California

MANUSCRIPT REVIEWER/EDITORIAL RESPONSIBILITIES

- 2007-2010 Editorial Board, *Journal of the CardioMetabolic Syndrome*
2007-2016 Editorial Board, *Physical Therapy*

Ad-Hoc

Reviewer for: *Acquired Immune Deficiency Syndrome (AIDS)*
American Journal of Obstetrics and Gynecology
AIDS Research and Human Retroviruses

American Journal of Physiology-Endocrinology and Metabolism
Diabetologia
HIV Medicine
HIV Therapy
JCI Insight
Journal of the American Medical Association
Journal of the Acquired Immune Deficiency Syndrome
Journal of Clinical Nutrition
Journal of Clinical Endocrinology
Journal of Infectious Diseases
Journal of Pediatrics
Medicine and Science in Sport and Exercise
Muscle & Nerve
Physical Medicine and Rehabilitation
Obesity
Pediatric Exercise Science
The Journal of Physiology
The Journal of Clinical Investigation
Scientific Reports

PROFESSIONAL SOCIETIES AND ORGANIZATIONS

Advisory Board

2012-present Barth Syndrome Foundation Scientific and Medical Advisory Board
2017-present Longer Life Foundation Scientific Advisory Board

Grant Reviewer

2009-2010 South African Medical Research Council Research Grant Program (ad hoc)
2010-2017 American Diabetes Association Research Foundation
2013-2017 Scientific Review Committee, Foundation for Physical Therapy
2015 Ad-Hoc Reviewer, NIH Senator Paul D. Wellstone Muscular Dystrophy Cooperative Research Centers (U54)
2017-present Chair, Scientific Review Committee, Foundation for Physical Therapy
2018 NIH/NIA Special Emphasis Panel ZAG1ZIJ-J5 (U19)
2018 NIH HIV Comorbidities and Clinical Studies (HCCS) Study Section
2019 NIH Physiology and Pathobiology of Cardiovascular and Respiratory Systems [F10A] Study Section

Promotion Reviewer

2016 University of Kansas, Department of Physical Therapy and Rehabilitation
2016 University of California, San Francisco, Department of Physical Therapy and Rehabilitation Science
2018 University of Kentucky College of Medicine, Department of Pharmacology and Nutritional Sciences

Abstract Reviewer

2017, 2018 American Society of Gene and Cell Therapy 20th Annual Meeting, Washington, DC

Member

1992-present American Physical Therapy Association (APTA), Sections on Research & Education
1999-present American College of Sports Medicine (ACSM)
2001-present American Physiological Society (APS)

2004-present American Diabetes Association (ADA)
2007-2016 American Heart Association (AHA)
2017-present American Society of Gene and Cell Therapy

Other

2015 American Physiological Society Minority Travel Award Mentor
2015-2016 2016, 2018 Barth Syndrome Foundation International Conference Planning Committee
2017-present Site Contact, Washington University, National Exercise Clinical Trials Network (NExTNet)

POST-FELLOWSHIP TRAINING

9/10/2002-9/16/2002 "Isotope Tracers in Metabolic Research", University of Texas Medical Branch, Galveston, TX
7/12/2009-7/31/2009 "An Organs Systems Approach to the Experimental Targeting of the Metabolic Syndrome", Vanderbilt University/NIDDK, Nashville, TN
7/6/2011-7/22/2011 "Bench Fundamentals for Translational Research" Washington University Clinical Research Training Center, St. Louis, MO
5/20/2014-5/22/2014 "Practical Mass Spectrometry" NIH/NIGMS Mass Spectrometry Resource, Washington University, St. Louis, MO
6/22/2017-6/23/2017 "USCS Genome Browser Workshop" Washington University Musculoskeletal Research Center, St. Louis, MO

INVITED LECTURES

1. **Cade WT** (2005) Metabolic complications in HIV. University of Southern California Physical Therapy Research Seminar, Los Angeles, CA.
2. **Cade WT** (2005) Heart function in individuals with human immunodeficiency virus. Community Activist Board Meeting, Washington University AIDS Clinical Trials Unit, St. Louis, MO.
3. **Cade WT** (2005) Metabolic complications in HIV. University of Oklahoma Department of Physical Therapy Research Seminar, Oklahoma City, OK.
4. **Cade WT** (2006) Insulin resistance in skeletal and cardiac muscle: implications for exercise training. Alumni Day Education, Program in Physical Therapy, Washington University, St. Louis, MO.
5. **Cade WT** (2006) Heart health: the metabolic syndrome. St. Louis Science Center, St. Louis, MO.
6. **Cade WT** (2006) How to keep your heart healthy. St. Louis Science Center, St. Louis, MO.
7. **Cade WT** (2006) Lipid kinetics and diastolic function in HIV. Nutrition and Obesity Research Center Seminar, Washington University, St. Louis, MO.
8. **Cade WT** (2006) Whole-body and myocardial substrate utilization in HIV. University of Florida Department of Physical Therapy Research Seminar, Gainesville, FL.
9. **Cade WT** (2007) Whole-body and myocardial metabolic complications in HIV. University of Maryland, Baltimore Department of Physical Therapy Research Day, Baltimore, MD.
10. **Cade WT** (2007) Metabolic and cardiovascular complications in HIV and HAART. Endocrinology Fellows Seminar, Washington University, St. Louis, MO.
11. **Cade WT** (2008) Family talk: Is it safe for my child to exercise? Barth Syndrome Foundation International Medical, Scientific and Family Conference, Clearwater, FL.
12. **Cade WT** (2008) Characterization of nutrient metabolism in Barth syndrome: what can this tell us? Barth Syndrome Foundation International Medical, Scientific and Family Conference, Clearwater, FL.
13. **Cade WT** (2008) Metabolic and cardiovascular complications in HIV and HAART. Cardiology Fellows Seminar, Washington University, St. Louis, MO.

14. **Cade WT** (2009) HIV infection during the HAART era: clinical presentation, complications and interventions. Educational Seminar, APTA Combined Sections, Las Vegas, NV.
15. **Cade WT** (2009) Diabetes-related microvascular and macrovascular disease in the clinical physical therapy setting. Educational Seminar, APTA Combined Sections, Las Vegas, NV.
16. **Cade WT** (2009) Metabolic and cardiovascular complications in HIV and HAART. Infectious Disease Fellows Seminar, Washington University, St. Louis, MO.
17. **Cade WT** (2010) Nutrient metabolism in Barth syndrome. Barth Syndrome Foundation International Medical, Scientific and Family Conference, Orlando, FL.
18. **Cade WT** (2010) Barth syndrome: using nutrient methodology to examine a rare, inherited cardiomyopathy. Nutrition and Obesity Research Center Seminar, Washington University, St. Louis, MO.
19. **Cade WT** (2010) Family talk: summary of exercise and metabolic research in Barth syndrome. Barth Syndrome Foundation International Medical, Scientific and Family Conference, Orlando, FL.
20. **Cade WT** (2010) Heart function in children exposed to HIV and HAART *in utero*. Community Activist Board Meeting, Washington University AIDS Clinical Trials Unit, St. Louis, MO.
21. **Cade WT** (2012) Nutrient metabolism and exercise in Barth syndrome. Barth Syndrome Foundation International Medical, Scientific and Family Conference, St. Petersburg, FL.
22. **Cade WT** (2012) Family talk: is endurance exercise beneficial in Barth syndrome? Barth Syndrome Foundation International Medical, Scientific and Family Conference, St. Petersburg, FL.
23. **Cade WT** (2013) Heart and skeletal muscle energetics and function in Barth syndrome. Royal Hospital for Children, Bristol, England.
24. **Cade WT** (2013) Exercise and nutrient metabolism in metabolic disease: developing a research line. Department of Rehabilitation Science, George Mason University, Fairfax, VA.
25. **Cade WT** (2014) Challenges of clinical research in adults and children with rare disease. Institute for Clinical and Translational Research, Brown Bag Lecture Series, Washington University, St. Louis, MO.
26. **Cade WT** (2014) Exercise and metabolic studies in Barth syndrome: an update. Barth Syndrome Foundation International Medical, Scientific and Family Conference, Clearwater Beach, FL.
27. **Cade WT** (2014) Family Talk: Exercise and nutrition in Barth syndrome. Barth Syndrome Foundation International Medical, Scientific and Family Conference, Clearwater Beach, FL.
28. **Cade WT** (2015) Potential application of clinical metabolism studies in pediatric cancer: lessons from a rare, inherited cardio-skeletal myopathy. St. Jude Children's Research Hospital, Memphis, TN.
29. **Cade WT** (2016) Family Talk: clinical research in Barth syndrome: lessons learned in St. Louis. Barth Syndrome Foundation International Medical, Scientific and Family Conference, Clearwater Beach, FL.
30. **Cade WT** (2017) Rehabilitation for Barth syndrome and other mitochondrial myopathies. United Mitochondrial Disease Foundation Regional Meeting, St. Louis, MO.
31. **Cade WT** (2017) "Career Development Training in Cardio-Metabolic Research: A Perspective from a PhD-trained Physical Therapist". 1st Annual "HIV and Cardiometabolic Diseases" Scientific Symposium, Kigali, Rwanda.
32. **Cade WT** (2017) "Cardiorespiratory and Musculoskeletal Assessment". 1st Annual "HIV and Cardiometabolic Diseases" Scientific Symposium, Kigali, Rwanda.
33. **Cade WT** (2018, 2019) "The Nuts and Bolts of VO₂max Assessment". Cardiology Fellows Seminar, Washington University, St. Louis, MO.
34. **Cade WT** (2018) Family Talk: Characterization of the Metabolic Phenotype in Barth Syndrome with and without Transplantation. Barth Syndrome Foundation International Medical, Scientific and Family Conference, Clearwater Beach, FL.
35. **Cade WT** (2018) Characterization of the Metabolic Phenotype in Barth Syndrome with and without Transplantation. Barth Syndrome Foundation International Medical, Scientific and Family Conference, Clearwater Beach, FL.

36. **Cade WT (2019)** Barth Syndrome: Using Nutrient Metabolism and Exercise Methodology to Examine a Rare, Inherited Cardiomyopathy. Department of Nutrition and Exercise Physiology Seminar Series, University of Missouri, Columbia, MO.

RESEARCH SUPPORT

Completed

- 2004-2005 "Lipid Kinetics During Acute Exercise in HIV"
National Research Service Award, Postdoctoral Fellowship
NIH F32 DK066977-01
(PI: Cade WT) Direct Costs: \$182,000
The major goal of this project was to examine the effect of protease inhibitor-based antiretroviral therapy on lipid kinetics during exercise in individuals with HIV.
- 2006-2011 "Exercise and TZD Effects on Myocardial Substrate Metabolism and Function in HIV".
Mentored Research Scientist Development Award
NIH KDK074343A
(PI: Cade WT) Direct Costs: \$446,986
The major goal of this project was to examine the effects of cardiorespiratory exercise training and Pioglitazone® on myocardial substrate metabolism and contractile function in HIV-infected individuals with impaired whole-body glucose metabolism.
- 2009-2012 "Characterization of Nutrient Metabolism in Barth Syndrome"
Barth Syndrome Foundation
(PI: Cade WT) Direct Costs: \$39,895
The major goal of this project was to examine the relationship between whole-body nutrient metabolism and cardiac function in boys and young men with Barth syndrome.
- 2010-2012 "Left Ventricular Function in HIV-Negative Children Exposed to HIV and HAART *in Utero*"
GlaxoSmithKline HIV Collaborative Investigator Research Award
(PI: Cade WT) Direct Costs: \$50,000
The major goal of this project was to examine if left ventricular function is impaired in pre-adolescent HIV-negative children who were exposed to HIV and HAART *in utero*.
- 2009-2013 "Adrenergic Mechanisms in Metabolic Pathophysiology: Thalamic Activation in Exercise Induced Hypoglycemia Associated Autonomic Failure"
Washington University Children's Discovery Institute
(PI: Arbelaez AM, Role: Co-I) Direct Costs: \$150,000
The major goal of this study was to determine if antecedent exercise increases dorsal midline thalamic synaptic activation in response to subsequent hypoglycemia in healthy subjects.
- 2010-2013 "Safety and Efficacy of Aerobic Exercise Training in Barth Syndrome"
Barth Syndrome Foundation
(PI: Cade WT) Direct Costs: \$40,000
The major goal of this project was to examine the safety and efficacy of aerobic exercise training in boys and young men with Barth syndrome.
- 2011-2014 "Maternal Lipid Metabolism and Neonatal Heart Function in Diabetes Mellitus"
Thrasher Research Fund
(PI: Cade WT) Direct Costs: \$244,235

The major goal of this study was to examine the effect of maternal nutrient metabolism during pregnancy on heart function in neonates born to women with diabetes.

- 2012-2013 “Effects of Resistance Exercise Training on Cardiac, Metabolic and Muscle Function and Quality of Life in Barth Syndrome”
Barth Syndrome Foundation
(PI: Cade WT) Direct Costs: \$62,000
The major goal of this project was to examine the safety and efficacy of resistance exercise training in boys and young men with Barth syndrome.
- 2014-2015 “Lipid Metabolomics in Diabetic Pregnancy”
Washington University Diabetic Cardiovascular Disease Center
(PI: Cade WT) Direct Costs: \$20,000
The major goal of project was to explore the relationship between maternal and fetal lipidomics and obstetric and neonatal metabolic and cardiovascular outcomes in diabetic pregnancy.
- 2014-2015 “Application of the WMS for Advanced Physical Training and Endurance Testing of Manual Wheelchair Users”
Missouri Spinal Cord Injuries Foundation
(PI: Klaesner J, Role: Co-I) Direct Costs: \$100,000
The major goal of the project was to develop and validate software for endurance exercise testing and training using the Wheel Mill System (WMS) in people with spinal cord injuries.
- 2013-2015 “Characterizing Neurodevelopment and Neurologic Injury in Infants Born to Diabetic Women (IBDW)”
American Diabetes Association
(PI: Cahill AG, Role: Co-I) Direct Costs: \$600,000
The major goal of this study was to characterize neurodevelopmental delay in IBDW compared to the offspring of obese, non-diabetic controls, and to further estimate the role of measures of lipid metabolism in identifying those IBDW at greatest risk of delay. The secondary goal was to explore the use of neonatal non-sedated magnetic resonance imaging as a biomarker for neurodevelopmental delay in IBDW.
- 2015-2016 “Choline Metabolomics in Diabetic Pregnancy”
Washington University Diabetes Research Center
(PI: Cahill AG, Role: Co-I) Direct Costs: \$10,000
This project examined the relationship between maternal choline metabolism and offspring outcomes in diabetic pregnancy.
- 2015-2017 “Planning for Clinical Gene Therapy Program for Barth Syndrome”
Barth Syndrome Foundation
(PI: Byrne BJ, Role: Co-I) Direct Costs: \$30,000
The overall goal of the project is to refine and translate the current preclinical work with the goal of pushing toward clinical realization. In particular, we propose simultaneous initiation of regulatory paperwork processes along with completing necessary baseline characterization data and toxicological analysis of a gene therapy strategy of systemic delivery of AAV9-TAZ for the treatment of Barth syndrome.

- 2016-2017 “Human Urinary Renal Epithelial Cells as Metabolic Biomarkers in Barth Syndrome”
Southeastern Center for Integrated Metabolomics Pilot & Feasibility Project
(PI: Pacak C, Role: Co-I) Direct Costs: \$25,000
This project will examine the utility of human urinary renal epithelial cells as biomarkers of metabolic status in patients with Barth syndrome.
- 2017 “Development of a Novel Tracer Method to Assess Post-Prandial Lipid Metabolism”
Cambridge Isotope Laboratories, Inc. Research Award
(PI: Cade WT) Direct Costs: \$10,000
The overall goal of this project is to develop a method to assess transient post-prandial oral fat absorption and transport kinetics simultaneously with a dual tracer post-prandial glucose protocol using a standardized mixed meal.
- Current**
- 2012-2018 “Weight Management in Obese Pregnant Underserved African American Women”
NIH U01 DK094416 (NCE)
(PI: Klein S, Haire-Joshu D, Cahill AG, Role: Co-I) Direct Costs: \$3,362,331 (NCE)
This project will test a novel lifestyle intervention to help obese socioeconomically disadvantaged African American women achieve healthy weight control during and after pregnancy and improve the health of their offspring.
- 2012-2019 “Heart and Skeletal Muscle Nutrient Metabolism, Energetics and Function in Barth Syndrome”
NIH 1 R01HL107406-01A1
(PI: Cade WT) Direct Costs: \$1,556,421 (NCE)
The major goals of this project are to characterize myocardial and skeletal muscle nutrient metabolism, energetics and function in children and young adults with Barth syndrome.
- 2015-2019 “Exercise Training to Improve Brain Health in HIV+ Individuals”
NIH 1 R01 NR015738-01A1
(PI: Ances B, Role: Co-I) Direct Costs: \$2,019,955
This project will test the impact of a combined endurance and resistance exercise training program on the cognitive health of people with HIV infection.
- 2015-2019 “Effects of Resistance Exercise Training on Cardiac, Metabolic and Muscle Function and Quality of Life in Barth Syndrome: Part 2”
Barth Syndrome Foundation
(PI: Cade WT) Direct Costs: \$48,558 (NCE)
The major goal of this project is to examine the safety and efficacy of resistance exercise training and protein supplementation in boys and young men with Barth syndrome.
- 2016-2020 “HIV- and ART-Associated Cardiometabolic Research Training in Rwanda”
D43 TW010335 01
(PI: Mutimura E, Role: Co-I) Direct Costs: \$1,410,000
The overall goal of this training strategy is to develop scientific leadership in HIV- and ART-associated cardiometabolic (CM) research in Rwanda through developing a dynamic team of scholars to implement well- designed contextually relevant studies, publish and present results at scientific meetings, and for networking, and develop expertise for independent research funding.

- 2016-2018 “Physical Activity during Pregnancy: Novel Pathways and Intervention Strategies for Improving Maternal and Neonatal Outcomes”
Kentucky Biomedical Research Infrastructure Network and INBRE Investigator Development Award
(PI: Tinius RA, Role: Co-I, Mentor) Direct Costs: \$80,000
This project will explore the role of post-prandial lipid metabolism, inflammation and physical activity on maternal and neonatal outcomes in overweight and obese women.
- 2017-2020 “Characterization of the ‘Metabolic Phenotype’ in Barth Syndrome with Cardiac Transplantation”
Barth Syndrome Foundation
(PI: Cade WT) Direct Costs: \$49,820
Characterizing the ‘metabolic phenotype’ could provide information regarding important differences between BTHS patients with and without cardiac transplantation that might lead to unique treatment paradigms and tailored interventions. Therefore, this study will obtain ‘phenotypic’ information on cardioskeletal morphology, substrate metabolism, energetics and function in BTHS participants with cardiac transplantation and compare them to BTHS participants without transplantation and unaffected controls.
- 2017-2022 “Combining Testosterone Therapy and Exercise to Improve Function Post Hip Fracture”
NIH R01 AG051647-01
(PI: Binder E, Role: Co-I) Direct Costs: \$2,190,142
The overall goals of this study are to evaluate, in elderly female hip fracture patients, the benefits of short-term testosterone therapy combined with supervised exercise, on mobility and quality of life during the year following the fracture, which is a problem with a large public health impact.
- 2018-2023 “Mechanisms and Treatment of Cardioskeletal Dysfunction in Barth Syndrome”
NIH (NHLBI) R01 HL136759
(PI: Pacak C, University of Florida, Role: Co-I) Direct Costs: \$1,117,739
The main purpose of this study is to characterize skeletal and cardiac muscle pathology in human derived inducible pluripotent stem cells differentiated myocytes.
- 2018-2019 “Application of the WMS for Advanced Physical Training and Endurance Testing of Manual Wheelchair Use”
Missouri Spinal Cord Injuries Foundation
(PI: Klaesner J, Role: Co-I) Direct Costs: \$125,000
The purpose of this project is to evaluate the efficacy of a WMS exercise intervention to increase the exercise intensity level for people with SCI as compared to a community-based exercise intervention control group (CG).
- 2018-2019 “Acute Effects of Aerobic and Resistance Exercise on Maternal Glucose Metabolism and Vascular Function in Obese Pregnancy”
National Rehabilitation Research Resource to Enhance Clinical Trials (REACT)
(PI: Cade WT) Direct Costs: \$40,000
This study will collect preliminary data on the independent effects of acute aerobic and resistance rehabilitative exercise in pregnancy, and further, in obese women; a population with a high morbidity during gestation.
- 2018-2019 “Effectiveness of Resistance Exercise Training Program in Youth with CF”
Cystic Fibrosis Foundation

(PI: Granados A, Role: Co-I)

Direct Costs: \$50,000

The goal of this proposal is to conduct a pilot study in CF patients to determine the relationship between LBM and glucose dysregulation, and the feasibility of conducting a 12 weeks supervised resistance exercise training (RET) in subjects with CF and abnormal glucose tolerance.

2018-2021 "The Inorganic Nitrate for Exercise in Heart Failure (INIX-HF) Trial"

NIH R34 HL138253 02

(PI: Peterson LR, Role: Co-I)

Direct Costs: \$112,371

The overarching aim of this study (and the follow-up randomized clinical trial [RCT]) is to determine whether inorganic nitrate offers a new, safe and effective treatment for ameliorating the disability due to heart failure reduced ejection fraction (HFrEF).

In Preparation

2019-2024 "AAV9 Gene Therapy for Barth Syndrome"

NIH 1 R01HL107406-01A1 Continuing Renewal

(Co-PIs: Cade WT, Byrne BJ)

The major goal of this project is to test the clinical and physiologic effects of systemic AAV9-delivered tafazzin (TAZ) gene therapy in adolescents and young adults with Barth syndrome.

2019-2024 "Physiologic and Molecular Effects of Maternal Physical Activity on Cardio-Metabolic Function during Pregnancy in Obese Women"

Planned NIH R01

(PI: Cade WT)

The major goals of this project is to examine the physiologic effects and molecular transducers of acute and chronic physical activity on cardio-metabolic function during different stages of pregnancy in obese women.

CLINICAL TITLE and RESPONSIBILITIES

Barnes Jewish Hospital Heart Failure Service: per diem exercise testing

TEACHING TITLE and RESPONSIBILITIES

Current Responsibilities at Washington University

Professional Doctor of Physical Therapy Curriculum

2004-present Lecturer
Topic: HIV
M02 610: Cell Systems and Diseases II

2005-present Lecturer
Topics: Diabetes, Heart Failure, Aging Athlete
M02 653: Health, Fitness & Prevention

2011-present Co-Course Master
M02 604: Cell Systems and Disease I

2018-present Co-Course Master
M02 621: Exercise Physiology

Program in Movement Science (PhD), School of Arts and Sciences

- 2005-present Course Master
L63 5410: Muscle Bioenergetics, Structure and Function
- 2018-present Course Master
L63 5890: Program Seminar: Grant Writing for the NIH

Past Responsibilities at Washington University

- 2005-2013 Lecturer
Topic: Cardiac responses to exercise training
M02 610: Exercise Physiology

University College, School of Arts and Sciences

- 2005-2011 Lecturer
Topic: Oxidative Stress and Aging
U29 BIO 431: Biology of Aging

Advisement & Mentoring

- 9/2006-12/2006 Shannon Goebel, DPT
Mentor
Washington University Physical Therapy Research Clinical Rotation
HIV-related physical and metabolic complications
- 2006-2007 Eugene Mutimura, PT, PhD, Kigali, Rwanda
Faculty Mentor
United States Fulbright Scholarship Program
Fulbright study: *Effects of Progressive Exercise Training on Tissue Adipokines and Cardiovascular and Diabetes Risk Factors in HIV-Infected Individuals with Metabolic Complications*
- 2008-2010 Dustin Hardwick, PT, PhD
Dissertation Committee
Washington University Movement Science Program
PhD Dissertation: *Shoulder Movement and Pain after Stroke*
- 2008-2011 Lori Tuttle, PT, PhD
Dissertation Committee
Washington University Movement Science Program
PhD Dissertation: *Skeletal Muscle Adaptation in People with Diabetes Mellitus and Peripheral Neuropathy*
- 2009-2011 Stacey DeJong, PT, PhD
Dissertation Committee
Washington University Movement Science Program

PhD Dissertation: *Effects of Movement Context on Reach-Grasp-Lift Motion and Grip Force after Stroke*

- 2009 Karen Bahow, DPT
Mentor
NIH TL1 RR024994 Predoctoral Clinical Research Fellow
Program in Physical Therapy, Washington University
Project: *Whole-body Nutrient Metabolism during Pregnancy in HIV*
- 2009-2014 Ericka Merriwether, PT, PhD
Faculty Advisement Committee
National Research Service Award F31 DK088512-01A1
Washington University Movement Science Program
PhD Dissertation: *Foot Progression Angle in Individuals with Diabetes & Peripheral Neuropathy*
- 2011-2012 Paula Newton, MD
Fellowship Research Committee Member
Department of Pediatrics, Washington University School of Medicine
Project: *Impact of a Short Duration of Moderate Exercise on Blood Glucose in Children and Young Adults with Type 2 Diabetes Mellitus*
- 9/2011-8/2015 Rachel Tinius, MS, PhD
Mentor
Washington University Movement Science Program
PhD Dissertation: *Physical Activity and Inflammation in Obese Pregnancy*
- 9/2013-5/2018 Adam Bittel, DPT, PhD
Mentor
Washington University Movement Science Program
PhD Dissertation: *Effect of Acute Resistance Exercise on Lipid Metabolism in Pre-Diabetes*
- 01/2017-6/2018 Holly Englestad, MD
Fellowship Research Committee Member
Department of Pediatrics, Washington University School of Medicine
Risk Factors for Stunted Growth in Short Gut Syndrome
- 01/2016-6/2018 Manu Abraham, MD
Fellowship Research Committee Member
Department of Pediatrics, Washington University School of Medicine
Mitochondrial Function in Offspring of Obese Women
- 04/2018-present Kerri Morgan, OTD, PhD
Mentor-Junior Faculty Development
Comprehensive Opportunities in Rehabilitation Research Training (CORRT)
Department of Occupational Therapy, Washington University School of Medicine
Implications of a Community-Based Exercise Program for People with Spinal Cord Injuries
- 04/2019-present Stephanie Schultz, PhD candidate

Dissertation Committee
Program in Neurosciences
Division of Biology & Biomedical Sciences
Washington University School of Medicine
Understanding emerging biomarkers and lifestyle factors in aging and AD

8/2019-present Chao Cao, MPH
Mentor
Washington University Movement Science Program
PhD Dissertation: *Metabolic Effects of Chemotherapy in Women with Breast Cancer*

Bibliography:

Peer-reviewed publications

1. Keyser RE, Peralta L, **Cade WT**, Miller S, Anxist J. Functional aerobic impairment in adolescents seropositive for HIV: A quasi-experimental design. *Arch Phys Med Rehabil* 2000; 84: 1479-84. PMID:11083351
2. Keyser RE, Rus V, **Cade WT**, Kalappa N, Flores RH, Handwerger, BS. Evidence for aerobic insufficiency in women with systemic lupus erythmatosus. *Arthritis Care Res* 2003; 49(1): 16-22. PMID:12579589
3. **Cade WT**, Peralta L, Keyser RE. Aerobic capacity in adolescents with HIV and controls. *Pediatr Rehabil* 2002; 5(3): 161-69. PMID:12581478
4. **Cade WT**, Fantry LE, Nabar SR, Shaw DK, Keyser RE. A Comparison of Qt and a-vO₂ in Individuals with HIV taking and not taking HAART. *Med Sci Sport Exer* 2003; 35(7): 1108-1117. PMID:12840630
5. **Cade WT**, Fantry LE, Nabar SR, Keyser RE. Decreased arteriovenous oxygen difference during treadmill testing in individuals infected with HIV. *Arch Phys Med Rehabil* 2003; 84:1595-1603. PMID: 14639557
6. **Cade WT**, Fantry LE, Nabar SR, Shaw DK, Keyser RE. Impaired oxygen on-kinetics in individuals with HIV. *Arch Phys Med Rehabil* 2003; 84: 1831-1838. PMID: 14669191
7. **Cade WT**, Nabar SR, Keyser RE. Reproducibility of the exponential rise technique of CO₂ rebreathing for measuring P_vCO₂ and C_vCO₂ to non-invasively estimate cardiac output during incremental, maximal treadmill exercise. *Eur J of Appl Physiol* 2004; 91:669-76. PMID: 14652761
8. Reeds DN, Yarasheski KE, Fontana L, **Cade WT**, Laciny E, Demoss A, Patterson BW, Powderly WG, Klein S. Alterations in liver, muscle, and adipose tissue insulin sensitivity in men with HIV infection and dyslipidemia. *Am J Physiol Endocrinol Metab.* 2006; 290(1):E47-E53. PMID: 16118251
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1. **Cade WT**, Bohnert KL, Reeds DN Bittel AJ, de las Fuentes L, Bashir A, Pacak CA, Byrne BJ, Gropler RJ & Peterson LR. Altered Myocardial Glucose and Fatty Acid

Metabolism is Associated with Lower Cardiac Function in Young Adults with Barth Syndrome.

2. Tinius RA, Blankenship M, Maples J, Cooley B, Furgal K, Norris, Furgal K, Norris E, Hoover D, Olenick A, & **Cade WT**. Validity of the 6-Minute Walk Test and YMCA Submaximal Cycle Test in Physically Active Women during Mid-Pregnancy.
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2. **Cade WT**, Bohnert KL, Peterson LR, Patterson BW, Bittel AJ, de las Fuentes L, Bashir A, Chacko SK, Wanders RJ, Pacak CA, Byrne BJ, & Reeds DN. Leucine and Alanine Metabolism are Altered in Children, Adolescents and Adults with Barth Syndrome.
3. **Cade WT**, Tinius RA, Reeds DN, Patterson BW, & Cahill AG. Maternal Plasma Long-Chain Ceramides is Associated with Maternal and Fetal Insulin Resistance.
4. **Cade WT**, Tinius RA, Reeds DN, Patterson BW, & Cahill AG. Maternal Leucine Kinetics during Late Pregnancy in Obese Women with and without Pregestational Type 2 Diabetes.

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COMMUNITY SERVICE

2003-present	The Journey Church, St. Louis, Missouri
2004-2012	Deacon
2004-2007	Community Group (Leader)
2009-2012	Response Team (Member)

2009-2012	Benevolence Team (Head)
2009-2016	Journey Kids (Member)