

Mark A. Sarzynski, PhD, FACSM, FAHA

Department of Exercise Science
Arnold School of Public Health
University of South Carolina
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EDUCATION & TRAINING

Postdoctoral Fellow, Human Genomics, 2009 – 2012
Human Genomics Laboratory, Pennington Biomedical Research Center, Baton Rouge, LA
Mentors: Claude Bouchard, Tuomo Rankinen

Doctor of Philosophy, Kinesiology, November 2008
Michigan State University, East Lansing, MI
Emphasis: Exercise Physiology
Cognates: Principles and Techniques of Genetics and Molecular Biology, Physical Activity
Epidemiology, Biomechanics
Certificate: Molecular Laboratory Diagnostics from the Medical Technology Program
Dissertation: Association of the PAI-1 4G/5G Polymorphism with Blood Pressure in the
Quebec Family Study: Interactions with Adiposity, Physical Activity, and the ACE I/D
Polymorphism
Mentor: Joe C. Eisenmann

Bachelor of Science, Physiology, May 2002
Michigan State University, East Lansing, MI
Honors College, Cum Laude

RESEARCH INTERESTS

My current research attempts to identify molecular biomarkers of response to behavioral and lifestyle interventions. My research employs a translational and integrated -omics (genomics, proteomics, metabolomics, transcriptomics, and diverse cellular assays) approach to identify and characterize the biological factors associated with the response of clinically relevant cardiometabolic phenotypes, particularly lipoproteins, adiposity, insulin sensitivity, and cardiorespiratory fitness, to lifestyle and exercise interventions. The goal is to better predict which individuals are most likely to benefit from lifestyle therapies in the management of cardiometabolic risk factors and to identify the features and functions of circulating molecules contributing to the cardioprotective benefits of exercise. Our research is collaborative and multi-disciplinary and involves clinical, population, and translational studies.

PROFESSIONAL EXPERIENCE

Associate Professor (with tenure), August 2020 – present
Graduate Director of PhD program, August 2017 – June 2021
Assistant Professor, August 2015 – July 2019
University of South Carolina, Arnold School of Public Health, Department of Exercise Science,
Columbia, SC

Adjunct Assistant Professor, Pennington Biomedical Research Center, Human Genomics Laboratory, Baton Rouge, LA January 2016 – present

Assistant Professor-Research, Pennington Biomedical Research Center, Human Genomics Laboratory, Baton Rouge, LA July 2014 – July 2015

Instructor-Research (Faculty), Pennington Biomedical Research Center, Human Genomics Laboratory, Baton Rouge, LA August 2012 – June 2014

Post-doctoral Fellow, Pennington Biomedical Research Center, Human Genomics Laboratory, Baton Rouge, LA January 2009 – July 2012

Graduate Research Assistant, Michigan State University, Department of Kinesiology, East Lansing, MI August 2007 – June 2008

Graduate Teaching Assistant, Michigan State University, Department of Kinesiology, East Lansing, MI August 2004 – July 2007

Other Professional Activities

Permanent member, NIH Cardiovascular and Respiratory Diseases study section, 2022 – 2026

Steering Committee member, GenBioPAC (Genomics and Biology of Physical Activity Consortium), 2022 – 2026

Ad hoc member, NIH Cancer, Heart, and Sleep Epidemiology A (CHSA) study section,
• 2022: June; 2021: Feb, June, Oct

Member, ACSM's Fit Society Page® Newsletter Editorial Board Committee. 2017 – 2018

Member, National Exercise Clinical Trials Network (NExTNet). 2015 – 2018

Member, Membership & Communications Committee of the American Heart Association Lifestyle and Cardiometabolic Health Council. 2014 – 2020

Member, Coronary Artery Risk Development in young Adults (CARDIA) Study Physical Activity & Fitness Working Group. 2011– present

Additional Training

Attendee, UNC Nutrition Research Institute's (NRI) Nutrigenetics, Nutrigenomics, and Precision Nutrition Workshop, Kannapolis, NC, June 3 – 6, 2019

Mentee, NIH Grant Writing Bootcamp, Arnold School of Public Health, University of South Carolina, December 2017 – August 2018

Attendee, NIH/NIGMS Metabolomics Workshop, University of Alabama at Birmingham, Birmingham, AL, June 14-18, 2015

Attendee, European Bioinformatics Institute-Wellcome Trust workshop on Proteomics Bioinformatics, Wellcome Trust Genome Campus, Hinxton, Cambridge, UK, November 11-15, 2013

Attendee, National Lipid Association's Translation of HDL Science Master Class: Core Curriculum Intensive Program, Charlotte, NC, September 13-14, 2012

Fellow, AHA/CDC Ten-Day Seminar on the Epidemiology and Prevention of Cardiovascular Disease, Tahoe City, CA. July-August 2012

Attendee, 2nd Annual NSF-Funded Five-Day Short Course on Statistical Genetics & Statistical Genomics, Honolulu, HI. July 2009

PROFESSIONAL AFFILIATIONS

- American College of Sports Medicine, 2004 – present, Fellow since 2016
- American Heart Association, 2010 – present, Fellow since 2015
 - Council on Lifestyle and Cardiometabolic Health
 - Council on Arteriosclerosis, Thrombosis, Vascular Biology

HONORS & AWARDS

- Faculty Research Award, Arnold School of Public Health, University of South Carolina, 2022
- Fellow of the American College of Sports Medicine, 2016
- Fellow of the American Heart Association, 2015
- Scott Grundy Fellowship Award for Excellence in Metabolism Research, American Heart Association Council on Lifestyle and Cardiometabolic Health, 2014

GRANTS and CONTRACTS

Current Research Support:

NIH R01 Sept 2023 – May 2028

Title: Identifying patterns of BMI development and associated behavioral, social, environmental, and biologic factors for children from 3-10 years

Direct Costs: \$ \$1,970,530 Total Costs: \$2,659,061

Role: **Co-I** (Weaver, PI) (4% effort)

NIH/NIDDK R01DK128057 April 2021 – March 2026

Title: Ensuring the cultural relevance of Dietary Guidelines diet patterns among African Americans: Increasing dietary quality and reducing type 2 diabetes risk

Direct Costs: \$2,651,132 Total Costs: \$3,426,100

Role: **Co-I** (Turner-McGrievy, PI) (10% effort Yrs 1-4, 15% in Yr 5)

NIH/NINR R01NR019628 March 2021 – February 2025
 Title: Biochemical profiling to identify cardiometabolic responsiveness to an endurance exercise intervention
 Direct Costs: \$2,074,411 Total Costs: \$2,881,126
 Role: **MPI** (25% effort) (Gerszten, Co-PI)

NIH/NHLBI R01HL146462 April 2019 – March 2024
 Title: The Molecular and Genetic Basis of Exercise-induced Changes in HDL Function
 Direct Costs: \$2,770,482 Total Costs: \$3,429,123
 Role: **Principal Investigator** (25% effort yrs 1-4, 33% yr 5)

Completed Research Support:

3R01HL146462-02S1 April 2020 – March 2022
 NIH Diversity Supplement to Emanuel Ayala
 Budget: \$123,032 Role: **PI/Mentor** Mentee: Emanuel Ayala

P20 GM103499 July 2019 – June 2020
 NIH/NIGMS SC INBRE Bioinformatics Pilot Project
 Title: miRNA bioinformatics of peak VO₂ response to exercise training in heart failure
 Role: **Co-PI** Budget: \$10,000

Office of Vice President of Research November 2018
 Gift from VPR to support research associated with 2nd year of SC INBRE project
 Amount: \$15,000

P20 GM103499 July 2018 – March 2019
 NIH/NIGMS South Carolina IDeA Network of Biomedical Research Excellence (SC INBRE) Developmental Research Project Program (DRP)
 Title: The Effect of Exercise Training on Proteins and MicroRNAs Bound to High-Density Lipoproteins
 Direct Costs: \$44,278 Total Costs: \$64,867
 Role: **Principal Investigator**

P20 GM103499 July 2017 – May 2018
 NIH/NIGMS South Carolina IDeA Network of Biomedical Research Excellence (SC INBRE) Developmental Research Project Program (DRP)
 Title: The Effect of Exercise Training on Proteins and MicroRNAs Bound to High-Density Lipoproteins
 Direct Costs: \$49,991 Total Costs: \$64,867
 Role: **Principal Investigator**

USC Office of the Vice President for Research July 2017 – September 2018
 ASPIRE-I Innovation grant: Advanced Support for Innovative Research Excellence
 Title: The Effect of Exercise Training on MicroRNAs Bound to High-Density Lipoproteins.
 Budget: \$14,890 Role: **Principal Investigator**

5 P20 GM103641 June 2016 – May 2017
NIH/NIGMS COBRE: Center for Dietary Supplements and Inflammation pilot grant
Title: Effects of short-term curcumin and multi-polyphenol supplementation on the anti-inflammatory properties of HDL.
Direct Costs: \$74,456 Total Costs: \$93,125
Role: **Principal Investigator**

USC Office of the Vice President for Research July 2016 – September 2017
ASPIRE-I Innovation grant: Advanced Support for Innovative Research Excellence
Title: Energy Expenditure Variability by Exercise Type.
Budget: \$14,999 Role: **Co-PI**

U24 DK097154 June 2015 – May 2016
NIH/NIDDK: West Coast Metabolomics Center Pilot and Feasibility Project Grants
Title: Changes in the Metabolome and Lipidome in Response to Exercise Training.
Budget: \$42,480 Role: **Principal Investigator**

U54 GM104940 March 2015 – July 2015
NIH/NIGMS Louisiana Clinical and Translational Science Center (LA CaTS) Pilot Grants
Program Renewal
Title: Integrating Clinical and Genetic Data to Predict the Response of Lipoproteins to Regular Exercise.
Budget: \$50,000 Role: **Principal Investigator**

P20 GM103528 August 2012 – July 2015
NIH/NIGMS Center of Biomedical Research Excellence (COBRE) program “Mentoring Obesity and Diabetes Research in Louisiana”.
Title: Gene-Environment Interactions and High-Density Lipoproteins: An Integrated Genomic, Biological, and Behavioral Approach.
Budget \$150,000 (annual) Role: **Project 1 Principal Investigator**

U54 GM104940 July 2013 – June 2014
NIH/NIGMS Louisiana Clinical and Translational Science Center (LA CaTS) Pilot Grants
Program.
Title: Integrating Clinical and Genetic Data to Predict the Response of Lipoproteins to Regular Exercise.
Budget: \$50,000 Role: **Principal Investigator**

Prince Faisal Award April 2012 – December 2012
2012 Prince Faisal Bin Fahad International Prize for Elite Sport Development Research:
“Predicting an elite endurance athlete status: a genome-wide exploration”
Budget \$200,000 Role: **Co-investigator**

#10POST3670006

July 2010 – June 2012

American Heart Association Greater Southeast Affiliation Postdoctoral Fellowship: “Genome-wide association study of the response of blood lipids to exercise training in the HERITAGE Family Study”.

Budget \$88,772

Role: **Principal Investigator****RESEARCH**

**Note:* Underlined author name denotes graduate student/postdoc/lab manager, while double underline denotes undergraduate student under my mentorship.

Manuscripts: Published (Peer-reviewed journals)

92. Samani SL, Barlow SC, Freeburg LA, Jones TL, Poole M, **Sarzynski MA**, Zile MR, Shazly T, Spinale FG. Left Ventricle Function and Post-Transcriptional Events with Exercise Training in Pigs. *Plos ONE* (in press)

91. Hoffman WG, Chen YQ, Schwartz CS, Barber JL, Dev PK, Reasons RJ, Miranda Maravi JS, Armstrong B, Gerszten RE, Silbernagel G, Konrad RJ, Bouchard C, **Sarzynski MA**. Effects of Exercise Training on ANGPTL3/8 and ANGPTL4/8 and their Associations with Lipid and Cardiometabolic Traits. *J of Lipid Research* 2024; 65(2): 100495. PMID: 38160757. DOI: 10.1016/j.jlr.2023.100495

90. Hota M*, Barber JL, Ruiz-Ramie JJ, Schwartz CS, Lam H, Robbins JM, Gerszten RE, **Sarzynski MA**, Bouchard C, Ghosh S. A bioinformatics exploration of the biology of intrinsic submaximal working capacity and its trainability. *Physiological Genomics* 2023; 55(11): 517-543. (2023 IF: 4.3) *Given *Physiological Genomics* Excellence in Research Award (\$250)

89. Benson MD, Eisman AS, [28 more authors], TOPMed Consortium, Bouchard C, **Sarzynski MA**, Rich SS, Rotter JI, Wang TJ, Wilson JG, Clish CB, Sarkar IN, Natarjan P, Gerszten RE. Protein-Metabolite Association Studies Identify Novel Proteomic Determinants of Metabolite Levels in Human Plasma. *Cell Metabolism* 2023; 35(9): 1646-1660. (2023 IF: 29.0)

88. Marini CF, Sisti D, Leon AS, Skinner JS, **Sarzynski MA**, Bouchard C, Rocchi MB, Piccoli G, Stocchi V, Federici A, Lucertini F. Accounting for individual characteristics makes the %HRR-% $\dot{V}O_2R$ relationship neither 1:1 nor more accurate. *European J Sports Sci* 2023; 8: 1600-1611. PMID: 35960537 DOI: 10.1080/17461391.2022.2113441 (2022 IF: 3.2)

87. Mi M, Barber JL, Rao P, Farrell LA, **Sarzynski MA**, Bouchard C, Robbins JM, Gerszten RE. Plasma Proteomic Kinetics in Response to Acute Exercise. *Molecular & Cellular Proteomics* 2023; 22: 100601. DOI: 10.1016/j.mcpro.2023.100601 (2023 IF: 7.0)

86. Silbernagel G, Chen YQ, Rief M, Kleber ME, Hoffman M, Stojakovic T, **Sarzynski MA**, Marz W, Qian Y, Schanagl H, Konrad RJ. Apolipoprotein C-II Is Associated with Cardiovascular Mortality in a Manner Consistent with its Modulation of Lipoprotein Lipase Activity. *European Heart Journal* 2023; 44: 2335-2345. PMID: 37155355 DOI: 10.1093/eurheartj/ehad261 (2023 IF: 39.3)

85. Robbins JM, Rao P, Deng S, Keyes M, Tahir U, Katz D, Beltran P, Marchildon F, Barber JL, Peterson B, Gao Y, Correa A, Wilson J, Smith JG, Cohen P, Bouchard C, **Sarzynski MA**, Gerszten RE. Plasma proteomic changes in response to exercise training are associated with cardiorespiratory fitness adaptations. *JCI Insight* 2023; 8(7):e165867. PMID: 37036009 PMCID: PMC10132160 <https://doi.org/10.1172/jci.insight.165867> (2023 IF: 8.0)
84. Turner-McGrievy GM, Wilson MJ, Carswell J, Okpara N, Aydin H, Bailey S, Davey M, Hutto B, Wilcox S, Friedman DB, **Sarzynski MA**, Liese AD. A 12-week randomized pilot intervention comparing the Healthy US, Mediterranean, and Vegetarian dietary patterns of the US Dietary Guidelines for changes in body weight, hemoglobin A1c, blood pressure, and dietary quality among African American adults. *Journal of Nutrition* 2023; 53(2):579-587. PMID: 36894249 doi: 10.1016/j.tjnut.2022.11.020. (2023 IF: 4.2)
83. Cronje HT, Mi MY, Austin TR, Biggs ML, Siscovick D, Lemaitre R, Psaty BM, Tracy R, Djousee L, Kizer J, Ix JH, Sotoodehnia N, Rao P, Robbins JM, Barber JL, **Sarzynski MA**, Clish C, Bouchard C, Mukamak KJ, Gerszten RE, Jensen MK. Plasma proteomic determinants of glucose-insulin homeostasis and incident type 2 diabetes: Insights from the Cardiovascular Health Study and HERITAGE Family Study. *Diabetes* 2023; Feb 7;db220628. PMID: 36749929 PMCID: PMC10130486 doi: 10.2337/db22-0628 (2023 IF: 7.7)
82. Dai J, Boghossian NS, **Sarzynski MA**, Luo F, Sun X, Li J, Fiehn O, Liu J, Chei L. Metabolome-Wide Associations of Gestational Weight Gain in Pregnant Women with Overweight and Obesity. *Metabolites* 2022; 12: 960. PMID: 36295862 doi.org/10.3390/metabo12100960 (2022 IF: 4.1)
81. Sui X, **Sarzynski MA**, Gribben N, Zhang J, Lavie CJ. Cardiorespiratory Fitness and the Risk of All-cause, Cardio-vascular and Cancer Mortality in Men with Hypercholesterolemia. *J of Clinical Medicine* 2022; 11: 5211. PMID: 36079141 PMCID: PMC9457072 DOI: 10.3390/jcm11175211 (2022 IF: 3.9)
80. Wang Z, Emerich A, (100-200+ additional authors including **Sarzynski MA**), Loos RJJ, den Hoed M. Genome-wide association analyses of physical activity and sedentary behavior provide insights into underlying mechanisms and roles in disease prevention. *Nature Genetics* 2022; 54: 1332-1344. PMID: 36071172. PMCID: PMC9470530 DOI: 10.1038/s41588-022-01165-1 (2022 IF: 30.8)
79. Sparks JR, **Sarzynski MA**, Davis JM, Grandjean PW, Wang X. Cross-Sectional and Individual Relationships between Physical Activity and Glycemic Variability. *Translational Journal of the American College of Sports Medicine* 2022; 7: 1-12. PMID: 36091485 doi: 10.1249/tjx.0000000000000207
78. Tahir UA, Katz DH, Avila-Pachecho J, Bick AG, Pampana A, Robbins JM, Yu ZY, Chen ZZ, Benson MD, Cruz DE, Ngo D, Deng S, Shi X, Zheng S, Eisman AS, Farrell L, Hall ME, Correa A, Tracy RP, Durda P, Taylor KD, Liu Y, Johnson WC, Guo X, Yao J, Chen YI, Manichaiku AWI, Ruberg FL, Blaner WS, Jain D, NHLBI Trans-Omics for Precision Medicine 1 Consortium, Bouchard C, **Sarzynski MA**, Rich SS, Rotter JJ, Wang TJ, Wilson JG, Clish

- CB, Natarajan P, Gerszten RE. Whole Genome Association Study of the Plasma Metabolome Identifies Novel Metabolites Linked to Cardiometabolic Disease in Black Individuals. *Nature Communications* 2022; 14: 4923. PMID: 35995766 PMCID: PMC9395431 DOI: 10.1038/s41467-022-32275-3 (2022 IF: 16.6)
77. Katz DH, Robbins JM, Deng S, Tahir UA, Bick AG, Pampana A, Yu Z, Ngo D, Benson MD, Chen ZZ, Cruz DE, Gao Y, Bouchard C, **Sarzynski MA**, Correa A, Natarajan P, Wilson JG, Gerszten RE. Proteomic Profiling Platforms Head-to-Head: Leveraging Genetics and Clinical Traits in Human Populations to Compare Aptamer- and Antibody-based Methods. *Science Advances* 2022; 8: eabm5164. PMID: 35984888 PMCID: PMC9390994 DOI: 10.1126/sciadv.abm5164 (2022 IF: 13.6)
76. **Sarzynski MA**, Rice T, Perusse L, Tremblay A, Stanforth PR, Tchernof A, Barber JL, Robbins JM, Ghosh S, Gerszten RE, Leon AS, Skinner JS, Rao DC, Bouchard C. The HERITAGE Family Study: A Review of the Effects of Exercise on Cardiometabolic Health. *Med Sci Sports Exerc* 2022; 54: S1-S43. PMID: 35611651, PMCID: PMC9012529 (2022 IF: 4.1)
75. Smith AB, Gay JL, Monsma E, Arent SM, **Sarzynski MA**, Emerson DM, Torres-McGehee TM. Investigation of Eating Disorder Risk and Body Image Dissatisfaction among Female Competitive Cheerleaders. *IJERPH* 2022; 19(4): 2196. PMID: 35206381 (2022 IF: 4.614)
74. Katz DH, Tahir UA...**Sarzynski MA** (author 30 of 36), Rich SS, Rotter JI, Wang TJ, Wilson JG, Natarajan P, Gerszten RE. Whole Genome Sequence Analysis of the Plasma Proteome in Black Adults. *Circulation* 2022; 145: 357-370. PMID: 34814699 (2022 IF: 37.8)
73. Smith AB, Gay JL, Emerson DM, **Sarzynski MA**, Arent SM, Torres-McGehee TM. Examination of the Prevalence of Female Athlete Triad Components among Competitive Cheerleaders. *IJERPH* 2022; 19(3): 1375. PMID: 35162393 (2022 IF: 4.614)
72. Barber JL, Ruiz-Ramie JJ, Robbins JM, Gerszten RE, Leon AS, Rao DC, Skinner JS, Bouchard C, **Sarzynski MA**. Regular exercise and patterns of response across multiple cardiometabolic traits: The HERITAGE Family Study. *Br J Sports Med* 2022; 56: 95-100. PMID: 33619128 (2022 IF: 18.6)
71. Sparks JR, **Sarzynski MA**, Davis JM, Grandjean PW, Wang X. Alterations in Glycemic Variability, Vascular Health, and Oxidative Stress following a 12-Week Aerobic Exercise Intervention-A Pilot Study. *Int J Exerc Sci* 2021; 14: 1334-1353. PMID: 35096240 PMCID: PMC8758171 (2022 IF: 0.9)
70. Sparks JR, Kishman EE, **Sarzynski MA**, Davis JM, Grandjean PW, Durstine JL, Wang X. Glycemic Variability: Importance, Relationship with Physical Activity, and the Influence of Exercise-A Brief Review. *Sports Medicine & Health Science* 2021; 3: 183-189. PMID: 35783368 PMCID: PMC9219280 <https://doi.org/10.1016/j.smhs.2021.09.004> (2021 IF: 3.115)

69. Takeshita L, Davidsen PL, Herbert JM, Antczak P, Hesselink MKC, Schrauwen P, Rice TK, Weisnagel SJ, Bergman RN, Rao DC, Robbins JM, Gerszten RE, Ghosh S, **Sarzynski MA**, Bouchard C, Falciani F. Genomics and transcriptomics landscapes associated to changes in insulin sensitivity in response to endurance exercise. *Scientific Reports* 2021; 11:23314. PMID: 34857871 (2021 IF: 4.996)
68. Ruiz-Ramie JJ, Barber JL, Lloyd-Jones DM, Gross MD, Rana JS, Sidney S, Jacobs DR, Lane-Cordova AD, **Sarzynski MA**. Cardiovascular Health Trajectories and Elevated C-Reactive Protein: The Coronary Artery Risk Development in Young Adults (CARDIA) Study. *J Am Heart Assoc* 2021; 10: e019725. PMID: 34423651 (2021 IF: 6.107)
67. Fix DK, Counts BR, Smuder AJ, **Sarzynski MA**, Koh H, Carson JA. Wheel Running Improves Fasting-induced AMPK Signaling in Skeletal Muscle from Tumor Bearing Mice. *Physiological Reports*. 2021; 9:e14924. PMID: 34270178 (2021 IF: 2.4)
66. Robbins JM, Peterson B, Schraner D, Tahir U, Rienmuller T, Keyes M, Katz D, Baumgartner C, Jean Beltran PM, Carr SA, Ghosh S, Barber JL, **Sarzynski MA**, Bouchard C, Gerszten RE. Plasma proteomic profiles of cardiorespiratory fitness. *Nature Metabolism* 2021; 3(6): 786-797. PMID: 34045743 (2021 IF: 19.95)
65. Marini CF, Sisti D, Leon AS, Skinner JS, **Sarzynski MA**, Bouchard C, Rocchi MB, Piccoli G, Stocchi V, Federici A, Lucertini F. HRR & $\dot{V}O_2R$ fractions are not equivalent: Is it time to rethink aerobic exercise prescription methods? *Med Sci Sports Exerc* 2021; 53: 174-182. PMID: 32694364 (2021 IF: 6.289)
64. Vellers, HL, Verhein KC, Burkholder AB, Lee J, Kim Y, Lightfoot JT, Shi M, Weinberg C, Rakinen T, **Sarzynski MA**, Bouchard, C. Association between Mitochondrial DNA Sequence and Heteroplasmy with Maximal Oxygen Uptake Trainability. *Med Sci Sports Exerc* 2020; 52: 2303-2309. PMID: 33064405 (2021 IF: 5.411)
63. **Sarzynski MA** and Bouchard C. World-class athletic performance and genetic endowment. *Nature Metabolism* 2020; 2: 796-798. PMID: 32943784
62. Murthy VL, Baldrige AS, Carnethon MR, Sidney S, Bouchard C, **Sarzynski MA**, Lima JAC, Lewis GD, Shah SJ, Shah RV. Polygenetic risk, fitness and obesity: the Coronary Artery Risk Development in Youth (CARDIA) Study. *JAMA Cardiology* 2020; 5(3): 40-48. PMID: 31913407 PMCID: PMC6990863
61. Williams SA, Kivimaki M, Langenberg C, Hingorani AD, Casas JP, Bouchard C, Jonasson C, **Sarzynski MA**, Shipley MJ, Alexander L, Ash J, Bauer T, Chadwick J, Datta G, DeLisle RK, Hagar Y, Hinterberg M, Ostroff R, Weiss S, Ganz P, Wareham N. Plasma protein patterns as comprehensive indicators of health. *Nature Medicine* 2019; 25: 1851-1857. PMID: 31792462 PMCID: PMC6922049
60. Ross LM*, Barber JL*, McLain AC, Weaver RG, Sui X, Blair SN, **Sarzynski MA**. The Association of Cardiorespiratory Fitness and Ideal Cardiovascular Health in the Aerobics

Center Longitudinal Study. *equal authorship. *Journal of Physical Activity & Health* 2019; 16(11): 968-975. PMID: 31553947

59. Ross R, Goodpaster BH, Koch LG, **Sarzynski MA**, Kohrt WM, Johannsen NM, Skinner JS, Castro A, Irving BA, Noland RC, Sparks LM, Spielmann G, Day AG, Pitsch W, Hopkins WG, Bouchard C. Precision Exercise Medicine: Understanding How Exercise Response Varies. *British Journal of Sports Medicine* 2019; 53(18): 1141-1153. PMID: 30862704

58. Robbins JM, Herzig M, Morningstar JE, **Sarzynski MA**, Cruz DE, Wang TJ, Gao Y, Wilson JG, Bouchard C, Rankinen T, Gerszten RE. Association of dimethylguanidino valeric acid with partial resistance to the metabolic health benefits of regular exercise. *JAMA Cardiology* 2019; 4(7): 636-643. PMID: 31166569

57. Weaver RG, Brazendale K, Hunt E, **Sarzynski MA**, Beets MW, White K. Disparities in Childhood Overweight and Obesity by Income: An epidemiological examination using three nationally representative datasets. *International Journal of Obesity* 2019; 43(6): 1210-1222. PMID: 30718822

56. Barber JL, Zellers KN, Barringhaus KG, Bouchard C, Spinale FG, **Sarzynski MA**. The Effects of Exercise Training on Circulating Cardiovascular-related MicroRNAs. *Scientific Reports* 2019; 9:7527. PMID: 31101833

55. Ghosh S, Hota M, Chai X, Kiranya J, Ghosh P, He Z, Ruiz-Ramie JJ, **Sarzynski MA**, Bouchard C. Exploring the underlying biology of intrinsic cardiorespiratory fitness through integrative analysis of genomic variants and muscle gene expression profiling. *Journal of Applied Physiology* 2019; 126: 1292-1314. PMID: 30605401

54. Ruiz-Ramie JJ, Barber JL, **Sarzynski MA**. Effects of exercise on HDL functionality. *Current Opinion in Lipidology* 2019; 30: 16-23 PMID: 30480581

53. Bornstein DB, Grieve GL, Clennin M, McLain AC, Whitsel LP, Hauret KG, Jones BH, **Sarzynski MA**. Which US States Pose the Greatest Threats to Military Readiness and Public Health? Public health policy and national security implications for a cross-sectional investigation of cardiorespiratory fitness and injuries among U.S. Army Recruits from 2010-2013. *Journal of Public Health Management and Practice* 2019; 25: 36-44. PMID: 29319585

52. Baird JF, Gaughan ME, Saffer HM, **Sarzynski MA**, Herter TM, Fritz SL, Den Ouden DB, Stewart JC. The effect of energy-matched exercise intensity on brain-derived neurotrophic factor and motor learning. *Neurobiology of Learning and Memory* 2018; 156: 33-44. PMID: 30359727

51. Barber JL, Kraus WE, Church TS, Hagberg JM, Thompson PD, Bartlett DB, Beets MW, Blair SN, Earnest CP, Huffman KM, Landers-Ramos R, Leon AS, Rao DC, Seip RL, Skinner JS, Slentz CA, Wilund KR, Bouchard C, **Sarzynski MA**. Effects of Regular Endurance Exercise on GlycA: Combined Analysis of 14 Exercise Interventions. *Atherosclerosis* 2018; 277: 1-6. PMID: 30170218

50. **Sarzynski MA**, Ruiz-Ramie JJ, Barber JL, Slentz CA, Apolzan JW, McGarrah RW, Harris MN, Church TS, Borja MS, He Y, Oda MN, Martin CK, Kraus WK, Rohatgi A. The effects of increasing exercise intensity and dose on multiple measures of high-density lipoprotein function. *Arteriosclerosis Thrombosis and Vascular Biology* 2018; 38: 943-952. PMID: 29437573
49. Rao P, Merath K, Drigalenko E, Jadhav AYL, Komorowski RA, Goldblat MI, Rohatgi A, **Sarzynski MA**, Gawrieh S, Olivier M. Proteomic characterization of high-density lipoprotein particles in patients with non-alcoholic fatty liver disease. *Clinical Proteomics* 2018; 15:10. PMID: 29527140
48. Miller KE, Martz DC, Stoner C, Jowers A, Taheri ML, **Sarzynski MA**, Wilkinson LW, Plaisance EP. Efficacy of an individualized telephone-based medical nutrition program on blood lipid and lipoprotein metabolism: results from Our Healthy Heart. *Nutrition & Dietetics* 2018; 75(1): 73-78. PMID: 29411495
47. Clarke K, Ricciardi S, Pearson T, Bharudin I, Davidson PK, Bonomo M, Brina D, Scagliola A, Simpson DM, Beynon RJ, Khanim F, Ankers J, **Sarzynski MA**, Ghosh S, Pisconti A, Rozman J, Hrabe de Angelis M, Bunce C, Stewart C, Egginton S, Caddick M, Jackson M, Bouchard C, Biffo S, Falciani F. The Role of eIF6 in Skeletal Muscle Homeostasis Revealed by Endurance Training Co-Expression Networks. *Cell Reports* 2017; 21(6): 1507-1520. PMID: 29117557
46. Sui X, **Sarzynski MA**, Lee DC, Kokkinos P. Impact of changes in cardiorespiratory fitness on hypertension, dyslipidemia and survival: an overview of the epidemiological evidence. *Progress in Cardiovascular Diseases* 2017; 60(1): 56-66. PMID: 28274819
45. **Sarzynski MA**, Ghosh S, Bouchard C. Genomic and transcriptomic predictors of response levels to endurance exercise training. *J Physiology* 2017; 595 (9): 2931-2939. PMID: 27234805 PMCID: PMC5407970
44. Graff et al. Genome-wide physical activity interactions in obesity – a meta-analysis of 200,452 adults. *PLoS Genetics* 2017; 13 (4): e1006528. PMID: 28448500
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4. Eisenmann JC, **Sarzynski MA**, Tucker J, Heelan KA. Maternal pre-pregnancy overweight and offspring fatness and blood pressure: role of physical activity. *Pediatric Exercise Science*. 2010; 22(3): 369-378. PMID: 20814033
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2. Timmons JA, Knudsen S, Rankinen T, Koch LG, **Sarzynski M**, Jensen T, Keller P, Scheele C, Vollaard NBJ, Nielsen S, Åkerström T, MacDougald OA, Jansson E, Greenhaff PL, Tarnopolsky MA, van Loon LJC, Pedersen BK, Sundberg CJ, Wahlestedt C, Britton SL, Bouchard C. Using molecular classification to predict gains in maximal aerobic capacity following endurance exercise training in humans. *Journal of Applied Physiology*. 2010; 108: 1487-1496. PMCID: PMC2886694
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**Book Chapters:
Published**

Barber JL and **Sarzynski MA**. Heritability of Endurance Traits from Human Research Models. In: J.T. Lightfoot, Hubal M, and SM Roth (Eds): The Routledge Handbook of Sport and Exercise Systems Genetics. Taylor & Francis Group, New York, NY, 2019.

Ruiz-Ramie JJ, **Sarzynski MA**, Grieve GL. Physical activity and chronic disease. In: D. Bornstein, A Eyler, JE Maddock, and JB Moore (Eds): Physical Activity and Public Health Practice: A Guide for Effective Interventions. Springer Publishing, New York, NY, 2019.

Sarzynski MA. Section: Exercise Genomics in Chapter: Emerging topics of importance: Professional development, pharmacology, genetics/genomics. In: Ehrman JK, Kerrigan DJ, and Keteyian SJ (Eds): Advanced Exercise Physiology: Essential Concepts and Applications. Human Kinetics, Champaign, IL, 2017.

Church TS, Lavie CJ, **Sarzynski MA**, Swift DL. Exercise and Lipids. In: Ballantyne CM (Ed): Clinical Lipidology: A Companion to Braunwald's Heart Disease 2nd edition. Saunders Elsevier, Philadelphia, PA, 2015.

Sarzynski MA, Rankinen T, Bouchard C. Twin and family studies of training responses. In: C Bouchard and E Hoffman (Eds): Genetic and molecular aspects of sports performance. Wiley-Blackwell, Oxford, UK, 2011.

Rankinen T, **Sarzynski MA**, Bouchard C. Genes and response to training. In: C Bouchard and E Hoffman (Eds): Genetic and molecular aspects of sports performance. Wiley-Blackwell, Oxford, UK, 2011.

Presentations:

Invited Speaking Engagements

“Exercise and Glucose-Insulin Homeostasis: Clinical, Genomic, and Molecular Insights”. The Diabetes Institute, Heritage College of Osteopathic Medicine, Athens, OH, January 19, 2024.

“Multi-omics Investigations of Cardiometabolic Responses to Exercise Training”, Cardiovascular Translational Research Center, University of South Carolina School of Medicine, March 22, 2022.

“Using omics to better understand exercise trainability”. Invited seminar speaker (honorarium), Dept. of Health & Exercise Science, Colorado State University, March 12, 2021.

“Age, sex, and race differences in exercise response variability”. Invited speaker, 2017 PBRC Symposium on Exercise Response Variability, Baton Rouge, LA.

“Genomic predictors of CVD trait responses to exercise training: progress & perils (& promise!)”. Mid-Atlantic Regional Chapter of the American College of Sports Medicine, Nov. 6, 2015, Harrisburg, PA

“Exercise and lipids and lipoproteins: moving beyond cholesterol”. University of Copenhagen Strategic Platform for Lifestyle, Obesity, and Metabolic research (LOM) Conference on

Exercise and Physical Activity in Relation to Lifestyle, Obesity and Metabolic Diseases. Copenhagen, Denmark, May 18, 2015.

“Exercise Genomics and the Quest for Personalized Medicine: Lessons learned from the HERITAGE Family Study”. Center for Health, Intervention, and Prevention at the University of Connecticut Lecture Series on Genomics and Health Behavior. Storrs, CT, April 23, 2015.

“The Good and Bad Cholesterol Myth: Implications for Exercise and Health”. Northland ACSM annual meeting, Mankato, MN, October 10, 2014.

“Exercise Genomics: The Search for the Genetic Component of Exercise-Related Traits”. Northland ACSM annual meeting, Mankato, MN, October 9, 2014.

“Lack of Replication of Associations for Elite Endurance Athlete Candidate Genes in the GENATHLETE Study”. Prince Faisal Bin Fahad International Prize Award Ceremony and the International Symposium on Sport Sciences, Dubai, UAE, February 25, 2014.

Speaker, Meet-the-Expert Networking Session at the American College of Sports Medicine 2012 Annual Meeting, San Francisco, CA, June 1, 2012.

Speaker (Academic), Student Colloquium at the American College of Sports Medicine 2012 Annual Meeting, San Francisco, CA, May 30, 2012.

“Genetic associations in the CARDIA Fitness Study”. CARDIA Steering Committee and Review Board In-Person Meetings, Bethesda, MD, March 25-26, 2010.

Invited Conference Presentations

“Effects of exercise on lipoprotein composition (Integrated Omics) and function”. Invited speaker for Session: Novel Aspects of Lipoprotein Composition and Function at American Heart Association Scientific Sessions, Nov 5, 2022, Chicago, IL

“Exercise Omics: Past, Present and Future Through the Lense of the HERITAGE Family Study”. Mid-Atlantic Regional Chapter of the American College of Sports Medicine, Nov. 4, 2022, Harrisburg, PA

“Predicting the exercise response of lipids and lipoproteins: a multi-omic and multi-collaborative approach”. Genomics, Genetics, and Exercise Biology: A Celebratory Symposium, Santorini, Greece, May 16, 2015.

“The '-omics' of HDL response to exercise training”. Invited speaker for the Featured Symposium “Is it because of my Genes that My Jeans Don't Fit?: Integrating the '-omics' to Understand the Control of Activity and Weight” at the ACSM 2014 Annual Meeting, Orlando, FL.

Sarzynski MA, Rice TK, Sung YJ, Rao DC, Bouchard C, Rankinen T. GWAS of Triglycerides and LPL Activity Responses to Exercise Training in the HERITAGE Family Study. Invited

speaker for the Featured Science Session “Evidence for the importance of Genomics in Exercise” at the ACSM 2011 Annual Meeting, Denver, CO.

Published Abstracts/Refereed Presentations at Conferences (Selected)

**Note:* Underlined author name denotes graduate student or postdoc, while double underline denotes undergraduate student under my mentorship.

Oral

Sarzynski MA, Barber JL, Robbins JM, Ghosh S. HERITAGE Family Study at 25: Summary of Training Effects on Fitness, Reproducibility, Genomics, and Molecular Transducers. Chair and Speaker of Symposium at American College of Sports Medicine Annual Meeting San Diego, CA June 2022.

Sarzynski MA. “HDL as a biomarker for vascular function: using systems biology to unravel the effects of exercise” Oral presentation as part of Symposium: Cardiometabolic Risk Across the Lifespan: Insulin Resistance, Metabolomics & Measurement. ACSM Annual Meeting June 1, 2018

Sarzynski MA. HDL as a biomarker for vascular function: using systems biology to unravel the effects of exercise. Talk part of Symposium VII: Vascular Dysfunction From Gene, Child to Adult: Exercise to the Rescue! at the Southeast Chapter of American College of Sports Medicine, Greenville, SC. February 18, 2017

Sarzynski MA*, Rankinen T, Leon AS, Rao DC, Skinner JS, Després JP, Bouchard C. Changes in HDL Particle Traits in Response to Regular Exercise: Results from the HERITAGE Family Study. *Circulation*. 2014; 129:A36. *Recipient of the Scott Grundy Fellowship Award for Excellence in Metabolism Research at the AHA EPI/NPAM 2014 Scientific Sessions.

Sarzynski MA, Sternfeld B, Carnethon M, Sidney S, Quesenberry CP Jr, Haskell WL, Jacobs DR Jr, Lewis CE, Schreiner PJ, Williams OD. Association of 20-Year Changes in Cardiorespiratory Fitness with Incident Dyslipidemia between Years 20 and 25 in the CARDIA Fitness Study. *Circulation*. 2013; 127: A038

Sarzynski MA, Rankinen T, Sternfeld B, Fornage M, Jacobs DR Jr, Sidney S, Bouchard C. SNPs from 17 candidate genes with baseline symptom-limited exercise test duration and change in duration over 20 years: The CARDIA Fitness Study. *Medicine and Science in Sports and Exercise* 42(5) (Supplement): 89, May 2010.

Sarzynski MA, Rankinen T, Sternfeld B, Fornage M, Sidney S, Bouchard C. Associations between HIF1A gene sequence variation and cardiorespiratory fitness: The CARDIA Fitness Study. *FASEB J*. April 2009; 23 (Meeting Abstract Supplement): 955.31

Sarzynski MA, Eisenmann JC, Tucker J, Laurson K, Heelan KA. Association between maternal obesity and offspring fatness and blood pressure: Role of physical activity. North American Society of Pediatric Exercise Medicine (NASPEM) Biannual Conference (oral communication given by Dr. Eisenmann), Colorado Springs, CO, Sept. 20, 2008.

Oral presentations (given by my trainee with me as senior author)

Dev PK, Leszczynski EC, Schwartz C, Barber JL, Ghosh S, Gerszten RE, Olivier M, Rohatgi A, Clish CB, Bouchard C, Sarzynski MA. Association of HDL lipid classes and HDL traits before and after exercise training: HERITAGE Family Study. Oral presentation at Don Fredrickson Lipid Research Conference, Nashville, TN, Sept. 2023.

Clarkson WA, Barber JL, Reasons RJ, Hamid Z, Dev PK, Schwartz CS, Wallis K, Robbins JM, Bouchard C, Gerszten RE, Olivier M, Rohatgi A, **Sarzynski MA**. Association between cholesterol efflux capacity and HDL-sized and whole plasma proteins in the HERITAGE Family Study. Oral presentation at Don Fredrickson Lipid Research Conference, Durham, NC, Sept. 2022.

Clarkson WA, Barber JL, Robbins JM, Rao P, Mi M, Dev PK, Ghosh S, Clish C, Katz DH, Gerszten RE, Bouchard C, **Sarzynski MA**. Associations of Changes in Plasma Proteins and Body Composition Traits in Response to Endurance Training. Oral Presentation at American College of Sports Medicine Annual Meeting San Diego, CA June 2022.

Jones A, Barber JL, Skinner JS, Bouchard C, **Sarzynski MA**. Differences in Body Composition at Baseline and in Response to Exercise Training by Metabolic Health and Weight Status. Oral presentation at AHA Epi/Lifestyle meeting May 2021.

Grieve GL, Davis JM, Durstine JL, Geraci M, Wang X, Ritchey JS, Drenowatz C, **Sarzynski MA**. Reductions in energy expenditure after aerobic and resistance exercise in resistance-trained males. Oral presentation at the 2019 ACSM Annual Meeting. *Medicine & Science in Sports & Exercise*. 51(5S), May 2019.

Barber JL, Ruiz-Ramie JJ, Clarkson WA, Olivier M, Bouchard C, Rohatgi A, **Sarzynski MA**. Association of Exercise-Induced Changes in Cholesterol Efflux Capacity with Changes in the HDL Proteome. Oral presentation at HDL Workshop 2019, Boston, MA

Ross LM, Church TS, Blair SN, Durstine JL, Hagberg JM, Martin CK, Rankinen T, Ross R, Bouchard C, **Sarzynski MA**. Prevalence of VO₂max Low Response Across Nine Aerobic Exercise Interventions. Oral presentation at the American College of Sports Medicine Annual Meeting, Denver, CO. June 2, 2017. *MSSE* 49(5S):838, May 2017

Ross LM, Barber JL, Sui X, Blair SN, **Sarzynski MA**. Association of Cardiorespiratory Fitness and Ideal Cardiovascular Health in the Aerobics Center Longitudinal Study. Oral presentation (MA Sarzynski as presenter) at AHA Cardiovascular Disease, Epidemiology and Prevention / Lifestyle and Cardiometabolic Health 2017 Scientific Sessions in Portland, OR.

Posters (selected from 2015 onwards)

Barber JL, Rao P, Mi MY, Tahir UA, Dev PK, Bouchard C, Clish CB, Robbins, JM, **Sarzynski MA**, Gerszten RE. Phenotypic Manifestations of Polygenic Risk for Ischemic Stroke in Adults Free from Disease. Poster Presentation at American Heart Association Scientific Sessions, Philadelphia, PA, November 2023

Rao P, Barber JL, Mi M, Tahir UA, Deng S, Farrell LA, Dev PK, Bouchard C, Clish C, **Sarzynski MA**, Robbins JM, Gerszten RE. Large-scale plasma proteomics and Mendelian Randomization of cardiovascular performance and peak arteriovenous oxygen difference identify novel biology related to $\dot{V}O_2\text{max}$. Poster presentation at American Heart Association Scientific Sessions, Philadelphia, PA, November 2023.

Fredrickson K, Manish M, Barber J, Deng S, Rao P, Mi M, Dev PK, Farrell L, Clish C, Bouchard C, Gerszten RE, **Sarzynski MA**, Robbins JM. Antibody-Based Plasma Proteomics Profiling Reveals New Markers of Cardiorespiratory Fitness. Poster presentation at American Heart Association Scientific Sessions, Philadelphia, PA, November 2023.

Meyler S, Swinton PA, Bottoms L, Bouchard C, Dalleck LC, Hunter B, **Sarzynski MA**, Wellsted D, Williams CJ, Muniz-Pumares D. Changes in cardiorespiratory fitness following exercise training prescribed relative to physiological thresholds and to traditional intensity anchors. Poster Presentation at European College of Sport Science Annual Congress, Paris, France July 2023

Falahati A, Wolfarth B, Rauramaa R, **Sarzynski MA**, Bouchard C, Vellers HL. Mitochondrial Genome Characterization in Male World-Class Elite Endurance Athletes. Poster Presentation at American College of Sports Medicine Annual Meeting, Denver, CO June 2023

Stahl ME, Grammer E, McGee J, Brown T, Clunan MC, Huff AC, Osborne BG, Matarese LE, Pories WJ, Houmard JA, Carels RA, **Sarzynski MA**, Swift D. Effects Of Weight Loss And Weight Maintenance On Inflammation In Overweight And Obese Adults. Poster Presentation at American College of Sports Medicine Annual Meeting, Denver, CO June 2023

Grammer E, McGee J, Brown T, Clunan M, Huff A, Osborne B, Matarese L, Pories W, Houmard J, Carels R, **Sarzynski MA**, Swift D. Effects of weight loss and weight maintenance on apoB in overweight and obese adults. Poster Presentation at Southeast Regional American College of Sports Medicine Annual Meeting, Greenville, SC February 2023 and American College of Sports Medicine Annual Meeting, Denver, CO June 2023

Miranda Maravi JS, Schwartz CS, Dev PK, Barber JL, Reasons RJ, Pearce RW, McPhaul MJ, Gerszten RE, Rohatgi A, Bouchard C, Collier TS, **Sarzynski MA**. HDL Apolipoproteomic Score, Cardiometabolic Risk, and Exercise Training. Poster presentation at the 2023 American Heart Association Vascular Discovery: From Genes to Medicine Scientific Sessions, Boston, MA, May 2023

Samani SL, Barlow SC, Freeburg LA, Jones TL, Poole M, **Sarzynski MA**, Zile MR, Shazly T, Spinale FG. Relation between left ventricular relaxation and post-transcriptional regulation with exercise in pigs. Poster presentation at American Physiological Society Annual Meeting, Long Beach, CA, April 2023

Samani SL, Barlow SC, Freeburg LA, Jones TL, Poole M, **Sarzynski MA**, Zile MR, Shazly T, Spinale FG. Chronic exercise in pigs shifts post-transcriptional control of the myocardial

inflammasome. Poster presentation at American Physiological Society Annual Meeting, Long Beach, CA, April 2023

Miranda Maravi JS, Hoffman WG, Dev PK, Barber JL, Schwartz CS, Clarkson WA, Robbins JM, Rao P, Mi M, Ghosh S, Clish C, Silbernagel G, Chen YQ, Konrad RJ, Bouchard C, Gerszten RE, **Sarzynski MA**. Plasma Proteomic Signatures of ANGPTL3/8 and 4/8 Before and After Exercise Training. Presentation at the 2023 American Heart Association Epi/Lifestyle Scientific Sessions, Boston, MA March 2023

Dev PK, Miranda Maravi JS, Hoffman WG, Barber JL, Schwartz CS, Clarkson WA, Robbins JM, Rao P, Mi M, Ghosh S, Clish C, Silbernagel G, Chen YQ, Konrad RJ, Bouchard C, Gerszten RE, Sarzynski MA. Association of ANGPTL3/8 and 4/8 with Plasma Metabolites Before and After Exercise Training. Presentation at the 2023 American Heart Association Epi/Lifestyle Scientific Sessions, Boston, MA March 2023

Schwartz CS, Barber JL, Ghosh S, Rohatgi A, Kelesidis T, Bouchard C, Sarzynski MA. Endurance exercise training improves the anti-oxidative properties of high-density lipoproteins (HDL). Poster Presentation at Southeast Regional American College of Sports Medicine Annual Meeting, Greenville, SC February 2023

Grammer E, McGee J, Brown T, Clunan M, Huff A, Osborne B, Matarese L, Pories W, Houmard J, Carels R, **Sarzynski MA**, Swift D. Effects of weight loss and weight maintenance on apoB in overweight and obese adults. Poster Presentation at Southeast Regional American College of Sports Medicine Annual Meeting, Greenville, SC February 2023

Miranda-Maravi S, Clarkson WA, Barber JL, Schwartz CS, Dev PK, Robbins JM, Gerszten RE, Clish C, Bouchard C, **Sarzynski MA**. Association of Lipid Species Measured in HDL-sized and Whole Plasma. Poster Presentation at Annual Biomedical Research Conference for Minoritized Scientists (ABRCMS), Anaheim, CA, November 2022.

Barber JL, Cai G, Robbins JM, Rao P, Mi M, Ghosh S, Clish C, Katz DH, Bouchard C, Gerszten RE, **Sarzynski MA**. Proteomic landscape of plasma lipoprotein responses to regular exercise. Poster presentation at American Heart Association Scientific Sessions, Chicago, IL, November 2022.

Clarkson WA, Barber JL, Robbins JM, Cai G, Rao P, Mi M, Dev PK, Ghosh S, Clish C, Katz DH, Bouchard C, Gerszten RE, **Sarzynski MA**. Associations Between Plasma Proteins with Body Composition Traits and Their Responses to Exercise Training. Poster presentation at American Heart Association Scientific Sessions, Chicago, IL, November 2022.

Dev PK, Barber JL, Clarkson WA, Robbins JM, Rao P, Mi M, Ghosh S, Clish C, Katz DH, Bouchard C, Gerszten RE, **Sarzynski MA**. Associations Between Plasma Metabolites with Body Composition Traits and Their Responses to Exercise Training. Poster presentation at American Heart Association Scientific Sessions, Chicago, IL, November 2022.

Hoffman WG, Barber JL, Dev P, Clarkson WA, Cai G, Rao P, Mi M, Katz DH, Ghosh S, Clish C, Robbins JM, Bouchard C, Gerszten RE, **Sarzynski MA**. Association of Plasma Metabolites With Inflammatory Markers CRP and GlycA and Their Responses to Exercise Training. Poster presentation at American Heart Association Scientific Sessions, Chicago, IL, November 2022.

Meyler S, Bottoms L, Bouchard C, Dalleck L, Hunter B, **Sarzynski M**, Whyatt C, Williams C, Muniz-Pumares D. The effect of different methods of exercise intensity prescription on cardiorespiratory fitness following endurance training: a meta-analysis of individual participant data. *Europhysiology* 2022, Sept 17 2022, Copenhagen, Denmark

Hoffman WG, Chen YQ, Schwartz CS, Barber JL, Clarkson WA, Dev PK, Reasons RJ, Silbernagel G, Konrad RJ, Bouchard C, **Sarzynski MA**. Effects of Exercise Training on ANGPTL3/8 and 4/8 and their Associations with Lipid and Cardiometabolic Traits. Poster presentation at Don Fredrickson Lipid Research Conference, Durham, NC, Sept. 2022.

Reasons RJ, Hamid Z, Barber JL, Kass AI, Clarkson WA, Dev PK, Wallis K, Bouchard C, Robbins JM, Gerszten RE, Olivier M, **Sarzynski MA**. Association between the HDL-sized and circulating plasma proteomes. Presentation at American Heart Association Vascular Discovery: From Genes to Medicine Scientific Sessions, Seattle, WA May 2022.

Barber JL, Cai G, Robbins JM, Rao P, Mi M, Ghosh S, Clish C, Katz DH, Gerszten RE, Bouchard C, **Sarzynski MA**. Exercise Training-Induced Changes in Lipid Traits are Associated with Changes in Circulating Proteins and Metabolites. [JL Barber: Doctoral Student Award Finalist.] Poster Presentation at Southeast Regional American College of Sports Medicine Annual Meeting, Greenville, SC February 2022 and ACSM Annual Meeting, San Diego, CA June 2022

Dev PK, Barber JL, Cai G, Robbins JM, Rao P, Mi M, Ghosh S, Clish C, Katz DH, Gerszten RE, Bouchard C, **Sarzynski MA**. Exercise Training Slows Down Proteomic Age Acceleration in Middle-Aged to Older Adults: HERITAGE Family Study. Poster Presentation at Southeast Regional American College of Sports Medicine Annual Meeting, Greenville, SC February 2022 and ACSM Annual Meeting, San Diego, CA June 2022

Clarkson WA, Barber JL, Robbins JM, Rao P, Mi M, Dev PK, Ghosh S, Clish C, Katz DH, Gerszten RE, Bouchard C, **Sarzynski MA**. Associations of Changes in Plasma Proteins and Body Composition Traits in Response to Endurance Training. Poster Presentation at Southeast Regional American College of Sports Medicine Annual Meeting Greenville, SC February 2022

Schwartz CS, Charchar FJ, Barber JL, Robbins JM, Rao P, Mi M, Ghosh S, Bouchard C, Gerszten RE, **Sarzynski MA**. Genetically estimated telomere length weakly associates with body composition and metabolic profiles but not cardiorespiratory fitness. Poster Presentation at Southeast Regional American College of Sports Medicine Annual Meeting Greenville, SC February 2022.

Barber JL, Cai G, Dev PK, Robbins JM, Rao P, Mi M, Ghosh S, Clish C, Katz DH, Gerszten RE, Bouchard C, **Sarzynski MA**. Association Of Plasma Proteome With Inflammatory

Markers Crp And Glyca And Their Responses To Exercise Training. Poster Presentation (Given by MA Sarzynski) at American Heart Association Epi/Lifestyle Scientific Sessions, Chicago, IL March 2022.

Barber JL, Cai G, Robbins JM, Rao P, Mi M, Ghosh S, Clish C, Katz DH, Gerszten RE, Bouchard C, **Sarzynski MA**. Proteomic and Metabolomic Signatures of Plasma Triglyceride-Related Trait Responses to Regular Exercise. Poster Presentation at American Heart Association Epi/Lifestyle Scientific Sessions, Chicago IL March 2022

Ruiz-Ramie JJ, Barber JL, Wilkins JT, Snell-Bergeon J, Lloyd-Jones DM, Lane AD, **Sarzynski MA**. Association Of Discordance Between Low-density Lipoprotein And High-density Lipoprotein Cholesterol Versus Particle Concentration With Incidence Of Type 2 Diabetes: CARDIA Study. Poster presentation at American Heart Association Epi/Lifestyle Scientific Sessions, Chicago, IL March 2022

Clarkson WA, Barber JL, Armstrong B, Wang Y, McGillicuddy FC, Saldanha S, Akinmolayemi O, Neeland IJ, Rohatgi A, **Sarzynski MA**. Combined Metabolic Health And Obesity Status Is Associated With Markers Of High-Density Lipoprotein Metabolism: Dallas Heart Study. Poster presentation at American Heart Association Epi/Lifestyle Scientific Sessions, Chicago, IL March 2022

Marini CF, Sisti D, Leon AS, Skinner JS, **Sarzynski MA**, Bouchard C, Rocchi MB, Piccoli G, Stocchi V, Federici A, Lucertini F. Accounting for individual characteristics makes the %HRR-% $\dot{V}O_2R$ relationship neither 1:1 nor more accurate. Poster presentation at the European College of Sports Science Congress, September 2021.

Ruiz-Ramie JJ, Barber JL, Lane-Cordova AD, Wang X, Wilkins JT, Johannsen NM, **Sarzynski MA**. Discordance Between HDL Cholesterol Versus Particle Concentration and Cardiovascular Risk Factor Profile in Adults with Type 2 Diabetes. Poster presentation at American College of Sports Medicine Annual Meeting, June 2021

Jones A, Barber JL, Ayala EJ, Schwartz CS, Clarkson WA, Skinner JS, Bouchard C, **Sarzynski MA**. Cardiorespiratory fitness at baseline and in response to training across metabolic health and weight phenotypes. Poster Presentation at SEACSM virtual meeting Feb 2021 and American College of Sports Medicine Annual Meeting, June 2021.

Ayala EJ, Barber JL, Schwartz CS, Robbins JS, Gerszten RE, Wang X, Skinner JS, Bouchard C, **Sarzynski MA**. Clinical Predictors of $\dot{V}O_{2max}$ Response to Endurance Training: HERITAGE Family Study. Poster Presentation at SEACSM virtual meeting Feb 2021 and American College of Sports Medicine Annual Meeting, June 2021.

Sparks JR, Davis JM, Grandjean PW, **Sarzynski MA**, Wang X. Alterations In Glycemic Variability, Vascular Health, And Oxidative Stress Following A 12-Week Aerobic Exercise Intervention. Poster presentation at American College of Sports Medicine Annual Meeting, June 2021

Grammer E, McGee J, Brown T, Clunan M, Huff A, Osborne B, Matarese L, Pories W, Houmard J, Carels R, **Sarzynski MA**, Swift D. Effects of weight loss and aerobic exercise training on lipoprotein-insulin resistance (Ipir) score. Poster Presentation at SEACSM virtual meeting Feb 2021 and American College of Sports Medicine Annual Meeting, June 2021

Calderon II FA, Andrews CM, Vellers HL, Verhein KC, Burkholder AB, Lightfoot JT, **Sarzynski MA**, Bouchard C, Kleeberger SR. Characterization Of Mitochondrial Genome Indels In Individuals Classified By High And Low VO_{2max} Trainability. Poster presentation at American College of Sports Medicine Annual Meeting, June 2021

Barber JL, Cai G, Robbins JS, Rao P, Gerszten RE, Bouchard C, **Sarzynski MA**. Proteomic Predictors of High-Density Lipoprotein Cholesterol Response to Regular Exercise. Poster Presentation at the American Heart Association Epi/Lifestyle Scientific Sessions, May 2021

Takehita L, Davidsen PL, Herbert JM, Antczak P, Hesselink MKC, Schrauwen P, Rice TK, Weisnagel SJ, Bergman RN, Rao DC, Robbins JM, Gerszten RE, Ghosh S, **Sarzynski MA**, Bouchard C, Falciani F. Genomics and transcriptomics landscapes associated to changes in insulin sensitivity in response to exercise. Presentation at Functional Genomics to Systems Biology EMBL (European Molecular Biology Laboratory) virtual conference, November 2020.

Sarzynski MA, Barber JL, Ruiz-Ramie JJ, Robbins JM, Gerszten RE, Leon AS, Rao DC, Skinner JS, Bouchard C. Patterns of high and low response to regular exercise across multiple clinically relevant traits. *Medicine and Science in Sports and Exercise* 2020 52(7S): 480–481.

Flynn RA, Ruiz-Ramie JJ, Johannsen NM, Church TS, **Sarzynski MA**. Effects of Exercise Training on Circulating Branched-Chain Amino Acid and Ketone Levels in Diabetics. *Medicine and Science in Sports and Exercise* 2020 52(7S):103

Ruiz-Ramie JJ, Lane-Cordova AD, Wilkins JT, Bouchard C, **Sarzynski MA**. Discordance between LDL Cholesterol versus Particle Concentration and the Cardiovascular Risk Factor Profile. Poster presentation at the Southeast Regional American College of Sports Medicine Annual Meeting 2020. *Medicine and Science in Sports and Exercise* 2020 52(7S):421-422

Barber JL, Johannsen NM, Kraus WE, Church TS, **Sarzynski MA**. Effects of Aerobic and Resistance Training on the Lipoprotein Subclass Profile in Type 2 Diabetics. Poster Presentation at the Southeast American College of Sports Medicine annual meeting, Jacksonville, FL, Feb 14, 2020.

Barber JL, Smoker BA, Bouchard C, Olivier M, **Sarzynski MA** (presenter). Comparison of HDL and whole plasma proteomes. Poster presentation at HDL International Workshop, Valencia, Spain Sept. 26, 2019.

Ruiz-Ramie JJ, Bouchard C, **Sarzynski MA** (presenter). Association of Cardiovascular Disease Risk Factors with Discordance of HDL Cholesterol Versus Particle Concentration in the HERITAGE Family Study. Poster presentation at HDL International Workshop, Valencia, Spain Sept. 26, 2019.

Sparks JR, Durstine JL, Youngstedt SD, Porter RR, **Sarzynski MA**, Wang X. Sleep Restriction during 8-Week Calorie Restriction on Physical Activity and Lipoprotein Particle Concentrations and Sizes. Poster presentation at the 2019 ACSM Annual Meeting, Orlando, FL

Sarzynski MA, Ruiz-Ramie JJ, Barber JL, Robbins JM, Clish CB, Gerszten RE, Barupal DK, Showalter MR, Fiehn O, Bouchard C. Exercise Alters the Plasma Lipidomic Profile. Poster presentation at AHA's Vascular Discovery: From Genes to Medicine 2019

Barber JL, Ruiz-Ramie JJ, Clarkson WA, Olivier M, Bouchard C, Rohatgi A, **Sarzynski MA**. Association of Exercise-Induced Changes in Cholesterol Efflux Capacity with Changes in the HDL Proteome. AHA's Vascular Discovery: From Genes to Medicine 2019, Boston, MA

Pope BS, Ruiz-Ramie JJ, Barber JL, Lane-Cordova AD, Lloyd-Jones DM, Carnethon M, Lewis CE, Schreiner PJ, Bancks MP, Sidney S, **Sarzynski MA**. Association of Cardiovascular Health Trajectories and Cardiorespiratory Fitness: The CARDIA Study. Poster presentation at the American College of Sports Medicine National Meeting 2019.

Ghosh S, **Sarzynski MA**, Bouchard C. Genetics of Intrinsic Cardiorespiratory Fitness, A Regulator Of Obesity-Related Cardiovascular Risk. The Obesity Society Annual Meeting, Nashville, TN 2018.

Barber JL, Zellers KN, Barringhaus KG, Bouchard C, Spinale FG, **Sarzynski MA**. The Effects of Exercise Training on Cardiovascular-related Circulating MicroRNAs. Poster presentation at Integrative Biology of Exercise Conference, San Diego, 2018.

Baird JF, Gaughan ME, Saffer HM, **Sarzynski MA**, Herter TM, Fritz SL, Den Ouden DB, Stewart JC. The Effect of Exercise Intensity on the Kinematics of Reach Performance and Brain-Derived Neurotrophic Factor. Poster presentation at the American College of Sports Medicine Annual Meeting, Minneapolis, MN, 2018.

Sarzynski MA, Barupal DK, Showalter MR, Barber JL, Ruiz-Ramie JJ, Bouchard C, Fiehn O. Changes in the HDL Lipidome With Regular Exercise: a Pilot Study. Poster presentation at AHA ATVB 2018 Scientific Sessions.

Ruiz-Ramie JJ, Barber JL, Lloyd-Jones DM, Lane-Cordova AD, Gross M, Rana JS, Sidney S, Jacobs DR, **Sarzynski MA**. Cardiovascular Health is Associated with Incidence of Elevated C-Reactive Protein over 18 Years of Follow-up: The Coronary Artery Risk Development in Young Adults Study. Poster presentation at AHA Epi Lifestyle 2018 Scientific Sessions

Swift DL, **Sarzynski MA**, McGee JE, Barefoot SG, Brophy P, Nevels TR, Lutes LD, Houmard JA. Effects of Exercise Training and Increasing Non-Exercise Physical Activity on Lipoprotein Subclass and Size: Results from the I-CAN Study. Poster presentation at the AHA Cardiovascular Disease, Epidemiology and Prevention / Lifestyle and Cardiometabolic Health 2018 Scientific Sessions in New Orleans, LA

Baird JF, Gaughan ME, Saffer HM, **Sarzynski MA**, Herter TM, Fritz SL, Den Ouden DB, Stewart JC. The effect of energy-matched exercise intensity on brain-derived neurotrophic factor and motor learning. Society for Neuroscience Annual Meeting, Washington D.C., November 2017.

Barber JL, Ross LM, Sui X, Blair SN, **Sarzynski MA**. Change in Cardiorespiratory Fitness and Ideal Cardiovascular Health in the Aerobics Center Longitudinal Study. Poster presentation at the American College of Sports Medicine Annual Meeting, Denver, CO. June 1, 2017.

Grieve GL, Clennin M, McLain AC, Hauret KG, Jones BH, **Sarzynski MA**, Bornstein DB. Distribution Of Cardiorespiratory Fitness Levels Of US Army Recruits From 2010-2013 By State. Poster presentation at the American College of Sports Medicine Annual Meeting, Denver, CO. May 31, 2017.

Grieve GL, McFaddin TJ, Dopp AJ, Netto AL, Ritchie JS, **Sarzynski MA**, Drenowatz C. The effects of exercise mode and intensity on exercise energy expenditure and EPOC. Poster presentation at the 2017 SEACSM Scientific Sessions in Greenville, SC.

Miller KE, Martz DC, Stoner C, Jowers A, Taheri ML, **Sarzynski MA**, Wilkinson LW, Plaisance EP. Efficacy of an individualized telephone-based medical nutrition program on blood lipid and lipoprotein metabolism: results from Our Healthy Heart. Poster presentation at the Southeast Chapter of ACSM Annual Meeting 2017.

Sarzynski MA, Slentz CA, Apolzan JW, McGarrah RW, Harris M, Church TS, Martin CK, Kraus WE, Rohatgi A. High-amount and High-intensity Exercise Training Improves HDL Cholesterol Efflux Capacity. Poster presentation at the AHA Arteriosclerosis, Thrombosis and Vascular Biology 2016 Scientific Sessions in Nashville, TN.

Sarzynski MA, Drenowatz, Demello M, Hand GA, Blair SN. Differences in Peak METs Calculated Using Standard METs or RMR in Normal and Overweight/Obese Adults. Poster presentation at the ACSM Annual Meeting 2016 in Boston, MA.

Sarzynski MA, Church TS, Hagberg JM, Landers-Ramos R, Leon AS, Rao DC, Seip RL, Skinner JS, Thompson PD, Wilund KR, Bouchard C. Effects of Regular Endurance Exercise on GlycA: Results Across Four Exercise Training Studies. Moderated poster presentation at AHA Cardiovascular Disease, Epidemiology and Prevention / Lifestyle and Cardiometabolic Health 2016 Scientific Sessions in Phoenix, AZ.

Sarzynski MA, Rankinen T, Burton J, Mikus CR, Blair SN, Church TS, Després JP, Hagberg JM, Kraus WE, Leon AS, Rao DC, Seip RL, Skinner JS, Slentz CA, Thompson PD, Wilund KR, Bouchard C. Regular exercise improves the lipoprotein subclass profile determined by nuclear magnetic resonance: meta-analysis of 10 exercise training intervention groups. Poster presentation at AHA Cardiovascular Disease, Epidemiology and Prevention / Lifestyle and Cardiometabolic Health 2015 Scientific Sessions in Baltimore, MD.

Media coverage of research (selected)

- New York Times article about our 2021 Nature Metabolism paper by Gretchen Reynolds titled “The Best Type of Exercise? A Blood Test Holds Clue”, Posted June 9, 2021
 - <https://www.nytimes.com/2021/06/09/well/move/exercise-blood-test.html>
- CARDIA Polygenic risk paper: What Matters More for Obesity Risk, Genes or Lifestyle?
 - <https://www.webmd.com/diet/obesity/news/20200108/what-matters-more-for-obesity-risk-genes-or-lifestyle#1>
- Nature Medicine liquid biopsy paper, numerous articles posted December 2019
 - <https://www.dailymail.co.uk/health/article-7747113/Scientists-come-liquid-health-check-predict-range-diseases.html>
 - <https://medium.com/technicity/what-does-the-new-liquid-health-check-offer-8514857fcf2c>
- USA Today article titled “Physically fit recruits for Army are hard to find. Especially in these states”. Posted online January 10, 2018
 - <https://www.usatoday.com/story/news/world/2018/01/10/physically-fit-recruits-army-hard-find-especially-these-states/1016030001/>
- American Heart Association News report titled “Study: Unfit U.S. Army recruits may pose threat to military readiness”. Posted online January 10, 2018
 - <https://news.heart.org/unfit-u-s-army-recruits-may-pose-threat-to-military-readiness/>
- New York Times piece on Adverse Response to Exercise paper by Gina Kolata titled “For Some, Exercise May Increase Heart Risk”. Posted May 30, 2012
 - <https://well.blogs.nytimes.com/2012/05/30/can-exercise-be-bad-for-you/>

SERVICE

Professional Service

Grant reviewer

- Standing member of NIH Cardiovascular and Respiratory Diseases study section, 2022 – 2026
- Ad hoc reviewer for NIH Cancer, Heart, and Sleep Epidemiology Panel A (CHSA) study section: Feb 25-26, 2021; June 28-29, 2021; June 27-28, 2022
- Grant reviewer for Texas A&M Huffines Institute for Sports Medicine and Human Performance Faculty Research Seed Grant Program, July 2021
- Grant reviewer for KU Leuven, Belgium (Katholieke Universiteit Leuven), March 2021

University Service

- Mentor for USC PROPEL Bootcamps for accelerating NIH awards (mentor 4 junior faculty across 9 months to submit R-level NIH grants)
 - 2021 – 2022
 - 2023 – 2024
- Magellan Scholar grant reviewer, 2020, 2023
- Judge for poster competition for CAM/COBRE EAC meeting, 2019
- Reviewer for USC ASPIRE grant program, 2018 – present
 - ASPIRE I, 2018
 - ASPPIRE II, 2019, 2020
 - ASPIRE III, 2022
- Reviewer for USC SPARC Graduate Research Grant program, 2016 – 2018
- Discover USC Graduate Student Poster Reviewer, 2017

Department of Exercise Science Committee Memberships:

- Chair, EXSC Search Committee, Univ. of South Carolina, 2019 – 2020
- Member, EXSC Chair Search Committee, Univ. of South Carolina, 2018 – 2019
- Judge for EXSC quiz bowl, 2018 – 2019
- PhD Graduate Director and PhD Admissions & Curriculum Committee Chair, 2017 – 2021
- Executive Committee, Univ. of South Carolina, 2016 – 2017
- Arnold Childhood Obesity Initiative, 2016 – present
- Masters Program Task Force, Univ. of South Carolina, 2016 – 2017
- Faculty Asst/Assoc. Professor Search Committee, Univ. of South Carolina, 2016 – 2017
 - Committee responsible for three tenure-track hires

Manuscript Reviewing Activities

- Peer Reviewer for Professional Journals: *American Journal of Epidemiology; Applied Physiology, Nutrition, and Metabolism; Cardiovascular Diabetology; Circulation; Circulation: Cardiovascular Genetics; Diabetologia; European Journal of Applied Physiology; European Journal of Sport Science; Experimental Gerontology; Experimental Physiology; Journal of American Heart Association; Journal of Applied Physiology; Journal of Clinical Lipidology; Journal of Human Hypertension; Journal of Lipid Research; Journal of Sport and Health Science; Life Sciences; Lipids; Lipids in Health and Disease; Medicine and Science in Sports and Exercise; New England Journal of Medicine; Nutrition, Metabolism & Cardiovascular Diseases; Obesity; Pediatric Exercise Science; Physiological Genomics; Sports Medicine; Scandinavian Journal of Medicine & Science in Sports; The Physician and Sports Medicine*

Professional Society Activities

- Membership & Communications Committee of the American Heart Association Lifestyle and Cardiometabolic Health Council. 2014 – 2020
- ACSM's Fit Society Page® Newsletter Editorial Board Committee, 2017 – 2018
- Served on early career panel titled “Transitioning from Fellow to Faculty: Navigating the Job Search, Interviews, Negotiations, and More” at the American Heart Association’s Epidemiology and Prevention, Lifestyle and Cardiometabolic Health (Epi/Lifestyle) 2016 Scientific Sessions. March 3, 2016
- Abstract Reviewer for Genetics, American College of Sports Medicine Annual Meeting, 2015 – present
- Abstract Reviewer, Southeast Chapter of American College of Sports Medicine Annual Meeting 2016, 2015
- Session Chair, Genetics Slide (E-19), ACSM Annual Meeting 2014
- Abstract Reviewer, American Heart Association: Epi Lifestyle Scientific Sessions 2013 – present

Outreach Activities

- Host of NIH T32 Behavioral-Biomedical Interface Program topic session titled “Challenges to Journal Article Publishing, University of South Carolina Jan. 26, 2021.
- Interview with Today’s Dietitian February 21, 2019
 - <https://www.todaysdietitian.com/newarchives/0519p36.shtml>
- Science Fair Judge

- SC Regional II Science Fair, 2019
- Baton Rouge Magnet High School, Baton Rouge, LA, 2012 & 2013
- Kenilworth Science & Technology Charter School, Baton Rouge, LA, 2012
- Glasgow Middle School, Baton Rouge, LA, 2011
- Interview with BYU Radio “Can DNA Really Give You a Personalized Diet and Exercise Plan?”, November 6, 2018.
 - <https://www.byuradio.org/episode/1e199427-ea55-4350-b7cf-2bca7ca49591?playhead=5228&autoplay=true>
- Interview with Spartanburg Herald-Journal on benefits/effectiveness of hot yoga. June 9, 2017
<http://www.goupstate.com/news/20170611/feel-heat>
- University of South Carolina Dean’s Student Advisory Council. Panel member – Public Health CV panel discussion. March 15, 2017.
- Interview with Outside Magazine, June 26, 2016. Published as online article on June 27, 2016, “The Problem with Genetics-Based Training.”
<https://www.outsideonline.com/2094271/problem-genetics-based-training>
- University of South Carolina postdoctoral association. Invited speaker for panel on “Research statements.” March 22, 2016.
- Invited speaker, LA CaTS Community Research Advisory Board, Baton Rouge, LA, October 21, 2014
- Mentor (i.e., Big Brother), Big Brothers Big Sisters of Southeast Louisiana, 2010
- Faculty advisor, Michigan State University Women’s Club Volleyball, 2008
- Invited lecture, Grandparents University. “*Exercise and Your Heart: What happens and how it works!*” June 2007. Michigan State University, East Lansing, MI.
- Cardiorespiratory fitness and body composition testing
 - East Lansing school district: Assessed cardiorespiratory fitness, body composition, flexibility, blood pressure, and strength in elementary and junior high school students pre and post intervention using Fitnessgram®, 2005-2008
 - Division I college athletes: Men's and women's basketball, ice hockey, football, men's and women's cross-country, and women's crew, 2004-2008

TEACHING EXPERIENCE

University Courses taught

University of South Carolina (All within Department of Exercise Science)

- Physiology of Exercise, EXSC 780, 3 credits (Fall 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023)
 - Taught course online Fall 2020
- Genetics in Health Sciences, EXSC 723, 3 credits (Spring 2019, 2020, 2021, 2022, 2023)
 - **Taught online course for HBKU Master’s program based in Qatar, Spring 2021**
- How to Bust an Exercise Myth: Evidence-Based Practice in Exercise Science, EXSC 555, 3 credits (Spring 2017, 2018)
- Undergraduate Exercise Science Practicum, EXSC 444 (under my supervision: worked in my laboratory or assisted with clinical trial)
 - Fall 2016: Andrew Dopp (3 credits, 10 hrs/week)
 - Spring 2016: Jacob Barber (9 credits, 30 hours/week), Lois Buist and Caitlin Cramer (3 credits, 10 hours/week each)
 - Summer 2017: Rama Hassounh (6 credits, 20 hrs/week each)

- Fall 2017: William (Alex) Clarkson, (6 credits, 20 hrs/week each)
- Spring 2017: Haley Trapuzzano (6 credits, 20 hrs/week each)
- Independent Study, EXSC 499
 - “Energy Expenditure Variability by Exercise Type”
 - Fall 2016: Taylor McFaddin, Alexandra Netto (3 credits each)
 - Spring 2017: Jackson Ritchey (3 credits)
 - “HDL Function and Exercise”
 - Summer 2017: Kaitlyn Muscarella (3 credits)
 - Fall 2017: Rama Hassouneh (3 credits)
 - “Epigenetics of Body Weight”
 - Spring 2020: Andrew Hendrix (3 credits)
- Independent Study, EXSC 790
 - Fall 2019: Ryan Flynn, “Type 2 Diabetes: Clinical Trials and Risk Factors”
 - Fall 2017: George Grieve, “Quantile regression of fitness and injuries in Army recruits” (1 credit)
 - Spring 2017: Jonathan Ruiz-Ramie, “HDL Function and Exercise” (3 credits)
 - Summer 2017: Anthony Bixler (1 credit) and George Grieve (3 credits), “Energy Expenditure Variability by Exercise Type”
- Beyond the Classroom- Honors Undergraduate Research, SCHC 497
 - Fall 2021: Riley Reasons (3 credits)
 - Fall 2018: Brice Smoker (3 credits)
 - Fall 2017: Milaan Shah (3 credits)
- Honors Senior Thesis, SCHC 499
 - Fall 2019 (4 credits) & Spring 2020 (5 credits): Brice Smoker
 - Fall 2022 (4 credits) & Spring 2023 (5 credits): Riley Reasons

Michigan State University (2004-2007: All within the Department of Kinesiology)

Lead Instructor:

- Exercise Physiology, KIN 310
- Laboratory Experiences in Exercise Physiology, KIN 411
- Applied Human Anatomy Laboratory (cadaver based), KIN 217
- The Healthy Lifestyle, KIN 121
- Various Activity Classes: Racquetball, Volleyball, Weight Lifting, General Conditioning

Teaching Assistant:

- Applied Human Anatomy, KIN 216

Invited Lectures

- Cardiovascular Disease Epidemiology, EPID 744 (graduate class). “Lipoprotein Disease Epidemiology: Does Genetic Epidemiology add to the story?”. Department of Epidemiology and Biostatistics, Arnold School of Public Health, University of South Carolina, Columbia, SC.
 - April 9, 2019
 - March 31, 2021
- “Using omics to better understand exercise trainability”. Invited lecture and journal club at Dept. of Health & Exercise Science, Colorado State University, March 12, 2021.

- Physical Activity and Health: Epidemiology, Research and Practice; EXSC 700/882 (graduate class). “Lipids, Lipoproteins, and Physical Activity”. February 25, 2016. Department of Exercise Science, University of South Carolina, Columbia, SC.
- Physical Activity and Health: Epidemiology, Research and Practice; EXSC 700/882 (graduate class). “Sedentary behavior and health”. February 16, 2016. Department of Exercise Science, University of South Carolina, Columbia, SC.
- Physical Activity and Health: Epidemiology, Research and Practice; EXSC 700/882 (graduate class). “Physical Activity Measurement in Epidemiologic Research”. February 11, 2016. Department of Exercise Science, University of South Carolina, Columbia, SC.
- Applied Exercise Physiology, PE 755 (graduate class). “*Latest research in exercise genomics.*” July 16, 2015. South Dakota State University (remotely via video conference).
- Fundamentals of Clinical Trials in Exercise Science. “Dose-Response to Exercise in Women (DREW) trial results & discussion”. EXSC 555, November 3, 2015. University of South Carolina, Columbia, SC.
- Lifecourse in Exercise Physiology (Graduate class). “*Genetics of Pediatric Exercise Science.*” KIN 814, November 17, 2008. Michigan State University, East Lansing, MI.

MENTORING/ADVISING

Postdoctoral Fellows

Current (training start date)

- Eric Leszczynski, PhD, July 2023, Cell-free measures of HDL function across the diabetes spectrum: effects of exercise training and molecular underpinnings

Graduate Students

Ph.D.:

Current (training start date)

- Prasun Dev, August 2021, HDL Lipidomic and Proteomic Signatures of the Metabolic Health Spectrum: A Machine Learning Approach

Past (graduation date, dissertation title, present position)

- Jacob Barber, May 2022, Molecular Architecture of Cardiometabolic Responses to Regular Exercise, Current Postdoctoral fellow at Beth Israel Deaconess Medical Center, Harvard Medical School
- Jonathan Ruiz-Ramie, May 2020, Lipoprotein discordance: Associations with diabetes, metabolic syndrome, and response to exercise, Assistant Professor (tenure-track), Department of Kinesiology, Augusta University
- George Grieve, May 2018, The effects of exercise mode and intensity on energy expenditure during and after exercise in resistance trained males, Assistant Professor (tenure-track), Department of Health and Human Performance, The Citadel
- Leanna Ross, October 2017, The association of changes in cardiorespiratory fitness with changes in cardiometabolic risk factors, Current Instructor of Medicine at Duke Molecular Physiology Institute, Duke University School of Medicine

Master's:

Past (graduation date, thesis title)

- William (Alex) Clarkson, (dropped out of program December 2022), The Effects of Different Modes of Exercise Training on the HDL Lipidome: STRRIDE AT/RT
- Joshua Hawkins, May 2022, The effects of exercise training on cholesterol efflux capacity in the HERITAGE Family Study
- Emanuel Ayala, December 2021, Modifiable Clinical Predictors of VO₂max Response to Endurance Training: HERITAGE Family Study
- Ryan Flynn, August 2020, The Effects of Exercise Training Modality on Circulating Branched-Chain Amino Acid and Ketone Levels in Diabetics
- Jacob Barber August 2018, The Effects of Exercise Training on Cardiovascular-related Circulating MicroRNAs

Medical Students:

- William Hoffman, Summer 2022, as part of Student Opportunities for Academic Achievement through Research (SOAR) program for medical students between their first and second year. Project title “ANGPTL3/8 and ANGPTL4/8 complexes: Changes with exercise training and associations with cardiometabolic traits”

Post-Bac Students:

- Sebastian Miranda, Summer 2022-Spring 2023, as part of NIH-funded Post-Baccalaureate Education Program (PREP) that offers under-represented scholars a chance to build the requirements necessary to gain acceptance into a biomedical PhD program. Currently in PhD program at LSU

Graduate Student Fellowships & Awards

- Graduate Scholar in Aging Research Award (\$1,000), UofSC Arnold School of Public Health Office for the Study of Aging – Prasun Dev 2021-2022
- NIH/NIGMS SC INBRE Student Initiated Research Project award (\$3,000) – Jacob Barber, 2021-2022
- Department of Exercise Science Outstanding Master’s Student Award – Emanuel Ayala, 2021
- Honorable mention, American Kinesiology Association’s National Masters Scholar Award 2021 – Emanuel Ayala
- AHA Predoctoral Fellowship award (\$63,040) – Jacob Barber, 2021-2022
- SPARC Graduate Research Grant (\$5,000) – Jacob Barber, 2021
- Southeast American College of Sports Medicine (SEACSM) Doctoral Student Poster Award Finalist, 2021 – Alexis Jones
- Southeast American College of Sports Medicine (SEACSM) Master’s Student Poster Award Finalist, 2021 – Emanuel Ayala
- UofSC Graduate Breakthrough Scholar Award – Jacob Barber, 2021
- NIH Diversity Supplement – Emanuel Ayala (\$123,032), 2020 - 2022
- EXSC MS Research Scholarship (\$1,000) – Ryan Flynn, 2020
- American College of Sports Medicine Leadership and Diversity Training Program – Jonathan Ruiz-Ramie, 2018
- Admitted to USC Behavioral-Biomedical Interface Program (NIH T-32 pre-doctoral award) – Jacob Barber, 2018

- Discover USC 1st place poster session – Jonathan Ruiz-Ramie, 2018
- Department of Exercise Science Outstanding Doctoral Student Award – George Grieve, 2018
- Department of Exercise Science Outstanding Master’s Student Award – Jacob Barber, 2018
- Department of Exercise Science Outstanding Doctoral Student Award – Leanna Ross, 2017
- Norman J. Arnold Doctoral Fellowship Award (\$10,000) – George Grieve, 2017
- Honorable mention, American Kinesiology Association’s National Doctoral Scholar Award 2017 – Leanna Ross
- American College of Sports Medicine Michael Pollack Student Award, 2017 – Jacob Barber
- Southeast American College of Sports Medicine (SEACSM) Master’s Student Poster Award Finalist, 2017 – Jacob Barber for submission titled “Change in cardiorespiratory fitness and ideal cardiovascular health in the Aerobics Center Longitudinal Study”.
- Norman J. Arnold Doctoral Fellowship Award (\$10,000) – Jonathan Ruiz-Ramie, 2016

Doctoral Dissertation Committee Membership (by graduation date):

- 2016 – Jessica Baird, Rehabilitation Sciences
- 2017 – Barbara Szendrei, *International*-Technical University of Madrid
- 2018 – Ryan Porter, Applied Physiology
- 2019 – Brandon VanderVeen, Dennis Fix, Applied Physiology
- 2020 – Chelsea Larsen, Health Aspects of Physical Activity; Joshua Sparks, Applied Physiology
- 2021 – Allison Smith, Athletic Training

Doctoral Program of Study Committee Membership:

- 2020 – Thomas Cardaci
- 2021 – Morgan Jones, Marnie McLean
- 2022 – Alex Brooks, Marnie McLean

NIH T-32 Behavioral-Biomedical Interface Program doctoral student laboratory rotations

- 2021 – Alexis Jones (EXSC)
- 2021 – Brittany Crawford (EPI)

Honors Thesis Chair

- 2020 – Brice Smoker, “Association of Body Mass Index Genetic Risk Markers with Body Composition During Adolescence”
- 2023 – Riley Reasons, “Association between the HDL-sized and circulating plasma proteomes”

Undergraduate Research Assistants: Current and Previous

- Spring 2016 – Jacob Barber, Lois Buist, Caitlin Cramer
- Fall 2016 – Andrew Dopp
- Spring 2017 – Emanuel Ayala
- Summer 2017 – Emanuel Ayala, William Clarkson, Kaitlyn Muscarella
- Fall 2017 – William Clarkson, Rama Hassouneh, Milaan Shah
- Spring 2018 – Emanuel Ayala, William Clarkson, Milaan Shah, Brice Smoker
- Fall 2018 – Brice Smoker, Kathleen (Bailey) Radenbaugh
- Spring 2019 – Brice Smoker

Fall 2019 – Andrew Hendrix, Brice Smoker
Spring 2020 – Andrew Hendrix, Brice Smoker
Summer 2020 – Riley Reasons
Fall 2020 – Andrew Hendrix, Katherine Kerwin, Julianna Tyndall
Spring 2021 – Andrew Hendrix, Katherine Kerwin, Julianna Tyndall, Riley Reasons
Fall 2021 – Katherine Kerwin, Riley Reasons
2022 – Riley Reasons
2023 – Alexis Daugird, Matthew Valakos

Undergraduate Awards & Grants

- Science Undergraduate Research Fellowships (SURF) Program, SC Honors College, \$2000 – Matthew Valakos, May 2023 – August 2024.
- Magellan Journey for Early Researchers, “Creation of Biobank of Specimens from Exercise Clinical Trials” USC Office of Undergraduate Research, \$1000 - Matthew Valakos, January 2023 – May 2023.
- Magellan Scholar Research Award, “Association between the HDL-sized and circulating plasma proteomes”, USC Office of Undergraduate Research, \$2750 – Riley Reasons, May 2022 – May 2023.
- Science Undergraduate Research Fellowships (SURF) Program, SC Honors College, \$2000 – Riley Reasons, May 2021 – August 2022.
- Magellan Apprentice Award, “The Effects of One vs. Three Sessions of Exercise on Cholesterol Efflux”, USC Office of Undergraduate Research, \$1000 – Katherine Kerwin, Spring 2021 – Spring 2022.
- Magellan Apprentice Award, “Does global methylation relate to body composition changes in children”, USC Office of Undergraduate Research, \$1000 – Andrew Hendrix, Spring 2020 – Spring 2021.
- Discover Day Undergraduate Poster Session 1st place, Brice Smoker, April 26, 2019
- Magellan Scholar Research Award, “Time Course of Anti-Inflammatory Function of HDL Following Acute HIIT Exercise”, USC Office of Undergraduate Research, \$3000 – Brice Smoker, Fall 2019 – Spring 2020.
- Science Undergraduate Research Fellowships (SURF) Program, SC Honors College, \$1500 – Brice Smoker, July 2019 – August 2019.
- EXSC Undergraduate Student of the Year 2019, Emanuel Ayala
- Science Undergraduate Research Fellowships (SURF) Program, SC Honors College, \$3000 – Brice Smoker, Fall 2018 – Spring 2019.
- EXSC Undergraduate Student of the Year 2018, William Clarkson
- Magellan Scholar Research Award, “HDL Anti-Inflammatory and Anti-Oxidative Responses to Endurance Exercise Training”, USC Office of Undergraduate Research, \$3000 – Emanuel Ayala and William Clarkson, 2018.

Visiting scholars

- Barbara Szendrei (PhD student), Laboratory of Exercise Physiology, Physical Activity and Sport Sciences (INEF) Technical University of Madrid Calle Martín, Madrid, Spain, March-May 2014
- Ghazala Raja, PhD, Department of Biochemistry, PMAS Arid Agriculture University Rawalpindi, June-December 2012