

Seminar Talk

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Tuesday, November 01, 2016

3:00 p.m. KH 224

Title: Exercise resistance in obese phenotypes: do we target glucose delivery or utilization?

Abstract:

Obesity related insulin resistance is a key factor in the development of type 2 diabetes (T2D). Increased physical activity is widely recommended to reduce body fat and improve glucose regulation, although the optimal dose required to lower type 2 diabetes incidence remains unclear. Complicating these matters is the observation that pre-existing hyperglycemia has emerged as an important factor predicting attenuated insulin responsiveness after exercise. The exact cause for up to 30% of people having unfavorable cardiometabolic outcomes post-exercise training is unclear, but may relate to either the utilization of nutrients by the mitochondria or alterations in blood flow delivery due to endothelial dysfunction. Thus, there is an urgent need to identify metabolic vs. vascular profiles of “exercise resistant” people, and implement novel strategies to optimize cardiometabolic health. One such approach may include co-prescribing pharmacological agents (e.g. metformin or statins) with exercise to enhance cardiovascular /metabolic adaptations. Together, focus on tailoring lifestyle modification with other medical strategies to the individual based on disease phenotype will likely lead to maximizing the prevention and/or treatment of type 2 diabetes.

Bio:

Dr. Steven K. Malin, PhD is an Assistant Professor at the University of Virginia in the Department of Kinesiology and is the Director of the Applied Metabolism & Physiology Laboratory as well as Co-Director of Exercise Physiology Graduate Program within the Curry School of Education. He also holds a joint appointment in the Division of Endocrinology & Metabolism within the School of Medicine and is an associated faculty member in the Robert M. Berne Cardiovascular Research Center. Dr. Malin received his PhD from the University of Massachusetts Amherst in 2011 where he focused his research on the interaction between exercise and pharmacology for type 2 diabetes prevention. Thereafter, he conducted a Fellowship at the Cleveland Clinic in the Lerner Research Institute Department of Pathobiology between 2011-2014. During this Fellowship, Dr. Malin conducted research on the interaction of human nutrition, exercise, and bariatric surgery for the treatment of obesity related disease. Based on this transdisciplinary approach, Dr. Malin currently focuses on understanding how to personalize the application of exercise, diet, pharmacology and bariatric surgery for optimizing metabolic health. He has

published numerous clinical translational research articles, serves as a peer-reviewer for top physiology & metabolism journals, is an active member in several health organizations, and provides regional/national seminars centered on treatment strategies for improving metabolic health. Dr. Malin currently teaches undergraduate and graduate courses centered on Exercise Physiology and Energy Metabolism, and is highly motivated to promote physical activity and healthy eating as a chief tool for maximizing human wellbeing.