ATTENUATED OXYGEN TRANSPORT CAPACITY AND VASCULAR MITOCHONDRIAL DYSFUNCTION IN AGING AND DISEASE

Featuring Dr. Song-Young Park
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ABOUT DR. PARK

Dr. Song-young Park is an Assistant Professor in School of Health and Kinesiology at UNO. He joined Exercise Physiology Laboratory in 2017 after completing his post-doctoral research fellowship in department of cardiology at Boston University School of Medicine. He earned his PhD in integrative physiology from the University of Utah in 2015. Utilizing an integrative approach that combines both in-vivo and in-vitro techniques, Dr. Song-young Park’s research examines the impact of age and disease on vascular function and blood pressure regulation. He is specifically focused on the complex interactions of endothelial function, oxidative stress, and vascular function in terms of blood pressure regulation in diseased populations including peripheral artery disease (PAD), chronic obstructive pulmonary disease (COPD), heart failure, and hypertension. He is also interested in the impacts of age and cardiovascular disease on blood flow in the brain.

ABSTRACT

My research work focused on O2 transport and utilization linked by the integrative function of the heart, skeletal, and blood vessels in human aging and disease. The first study focused upon how aging impacts the vasodilatory capacity of human skeletal muscle feed arteries (SMFA). Our findings may explain, at least in part, the often observed attenuated perfusion of skeletal muscle with advancing age that may contribute to exercise intolerance in the elderly. The second study examined the impact of exercise on vascular mitochondrial function and vascular function. This study provide evidence that vessel mitochondria are therapeutic targets to improve vascular function, and also exercise training is a useful method for improving perfusion of skeletal muscle. In summary, this set of studies has identified novel mechanisms underlying blunted O2 transport and utilization often associated with aging and disease, and also found therapeutic targets for improving vascular function.