



Muscle microvascular flow regulation in health and disease

Michelle A. Keske

Institute for Physical Activity and Nutrition (IPAN), School of Exercise and Nutrition Sciences, Deakin University, Geelong, VIC

Skeletal muscle microvascular blood flow is linked to local, cellular metabolic needs. It is well accepted that microvascular blood flow will react (increase or decrease) to meet the metabolic demands of the muscle by altering the delivery of key nutrients and removal of waste products. However, during many chronic pathologies (e.g. declining metabolic and vascular health) muscle microvascular function is disrupted, and may be accompanied by reductions in capillary density, and these correlate with poor metabolism (e.g. glucose metabolism) and exercise capacity. Acutely reduced or defective microvascular blood flow in skeletal muscle also contributes to poor metabolism and impaired exercise capacity of muscle. Importantly, the reverse is also true i.e. acute improvements in microvascular function are correlated with better metabolic health and exercise capacity. Thus, the microvasculature can directly impact on muscle metabolism and function. This is important because research to date on how to optimise muscle health and function has focused on the muscle cell, and research needs to also consider the microvasculature as a regulator of metabolism and performance. In the presentation, I will discuss the impact of the microcirculation on skeletal muscle contraction and exercise performance in health and disease.