

## **Beneficial effects of exercise on regulation of microvascular flow**

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Exercise has long been recognised as a cornerstone in the prevention and management of insulin resistance and type 2 diabetes. Exercise and insulin each increase microvascular blood flow and enhance glucose disposal in skeletal muscle, however their mechanisms are distinct. Recent research has identified that the metabolic and vascular responses of insulin (but not contraction) are absent in insulin resistance, highlighting the importance of exercise in the acute management of glucose homeostasis. Furthermore, chronic exercise training augments insulin-mediated vascular responses in muscle and this is linked to improved insulin sensitivity. New research from my laboratory suggests that microvascular blood flow in skeletal muscle can remain elevated for up to 60min post-contraction and this vascular action plays an important role in glucose disposal following a single bout of exercise. Furthering our understanding of how contraction and insulin influence microvascular blood flow (and thus glucose regulation) will provide valuable insight into the mechanisms by which exercise can overcome insulin resistance.