

## **Family history of Type 2 diabetes alters muscle capillary perfusion after a meal**

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Muscle microvascular blood flow (MBF) is enhanced in response to insulin or a mixed meal and plays a key role in muscle glucose uptake. MBF is blunted in populations with insulin resistance and type 2 diabetes. We aimed to determine whether healthy people with a family history of type 2 diabetes (FH+) have impaired MBF when compared to those without a family history (FH-). Thirty (17FH-, 13FH+) age and BMI matched overnight-fasted volunteers underwent a liquid mixed meal challenge (MMC, 295 kcal). Plasma glucose and insulin levels were monitored every 30 minutes over 2 hours following the MMC. Brachial artery blood flow (Doppler ultrasound) and forearm muscle microvascular recruitment (contrast-enhanced ultrasound) was assessed at baseline and 60 min following the MMC. Both groups had similar plasma glucose and insulin levels before and during the MMC. Despite similar brachial artery blood flow, FH+ exhibited impaired MBF in response to the MMC. This is the first study showing impaired MBF in healthy FH+, using a MMC. Reduced MBF in FH+ may in part explain elevated risk for type 2 diabetes in this population.