VASCULAR FUNCTION FOLLOWING A HIGH FAT MEAL WITH RESISTANCE EXERCISE

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Postprandial lipemia causes vascular dysfunction, a precursor for cardiovascular disease. Acute aerobic exercise performed after a high fat meal (HFM) has been shown to attenuate the negative effects of a HFM on the vasculature. Acute resistance exercise (RE) alone may acutely increase arterial stiffness potentially having a negative effect on vascular function when performed after eating a HFM. **Purpose**: To measure arterial stiffness and postprandial lipemia after a HFM with or without RE. **Methods:** Ten recreationally active men (age 24 ± 5.5 years, BMI 24.7 ± 2.6 kg/m^2) were randomly assigned to either: (1) HFM alone (2) HFM followed 2h 15 min later by a bout of high intensity RE. Pulse wave velocity (PWV) was obtained from carotid-femoral sites as a measure of aortic stiffness. PWV from carotid-radial sites was used as a measure of peripheral artery stiffness. Circulating triglycerides (TRG) were obtained from finger stick samples to assess postprandial lipemia. All measures were made at baseline and 3 hours following HFM consumption. **Results:** Aortic PWV did not change with HFM (5.9 ± 1.1 m/s to 6.1 ± 1.0 m/s, $P > .05$) or RE+HFM (5.8 ± 0.8 m/s to 5.9 ± 1.1 m/s, $P > .05$). Peripheral PWV increased significantly in the HFM condition (7.2 ± 1.0 m/s to 7.7 ± 1.1 m/s, $P = .012$) and decreased significantly in the RE condition (7.2 ± .9 m/s to 5.9 ± 1.1m/s, $P = .012$ for interaction). TRG levels increased significantly with HFM (79.8 ± 46.7 mg/dL to 153 ± 58.2 mg/dL, $P < .001$) and RE attenuated this TRG increase (66.7 ± 22.7 mg/dL to 102.8 ± 37.7 mg/dL, $P = .049$ for interaction). **Conclusion:** RE attenuates the postprandial lipemia experienced after a HFM. Moreover, acute RE not only prevents peripheral vascular dysfunction caused by HFM but also improves peripheral vascular function, manifesting as a reduction in peripheral artery stiffness. There is no change in aortic stiffness in the postprandial state with or without RE.

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