

## Meal fatty acid composition has a differential effect on postprandial blood pressure in postmenopausal women

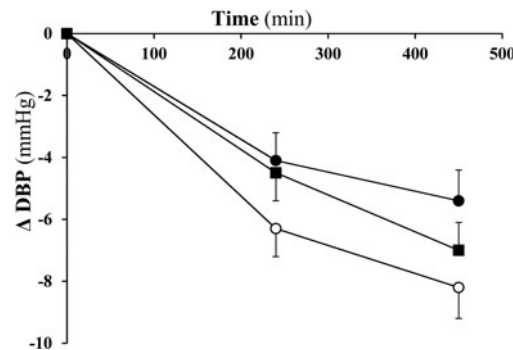
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Elevated postprandial triacylglycerol concentrations are an important independent risk factor for cardiovascular disease (CVD) in women<sup>(1)</sup>, but little is known about the effects of meal fat composition on postprandial lipaemia and vascular function in postmenopausal women<sup>(2)</sup>. The Dietary Intervention and Vascular Function (DIVAS-2) study aimed to investigate the acute consumption of test meals of varying fat composition on postprandial vascular reactivity and associated CVD risk biomarkers in postmenopausal women.

In a double-blind, randomised, cross-over, postprandial study, 32 postmenopausal women consumed sequential test meals rich in saturated fat (butter), cis-monounsaturated fat (olive oil and MUFA-rich spreads) or n-6 polyunsaturated fat (safflower oil and n-6 PUFA-rich spreads) on three separate occasions, each 4–6 weeks apart. Test meals were coded 1–3 for blinding and the sequential meals consisted of breakfast (0 min; 50 g total fat) and lunch (330 min; 30 g total fat). Blood pressure (BP) was determined at 0, 240 and 450 min. Blood samples were collected at 0 min and regularly until 480 min to measure lipids, and markers of insulin resistance.

Participants had a mean (SD) age 58 (5) years, BMI 25.7 (4.0) kg/m<sup>2</sup>, with fasted lipids and glucose within the normal range. Preliminary results showed no significant differences between study visits at baseline. A significant meal\*time interaction for the incremental postprandial diastolic BP (DBP) response (incremental area under the curve) ( $p = 0.007$ ) was observed, with a significantly greater reduction after test fat meal 1 compared with 2 ( $p = 0.012$ ) (Figure 1). No significant effects of meal fatty acid composition were observed for postprandial triacylglycerol, apolipoprotein B, non-esterified fatty acids, glucose, insulin, systolic BP or pulse pressure.



**Fig. 1.** Mean  $\pm$  SEM for the change in postprandial diastolic blood pressure ( $\Delta$ DBP) following sequential meals enriched in test fat meal 1 (open circles), test fat meal 2 (closed circles) and test fat meal 3 (closed squares).

In conclusion, meal fat composition was shown to have differential effects on the postprandial change in DBP following sequential high-fat meals. These data from part of the DIVAS-2 postprandial study and this trial was registered at [www.clinicaltrials.gov](http://www.clinicaltrials.gov) as NCT02144454.

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