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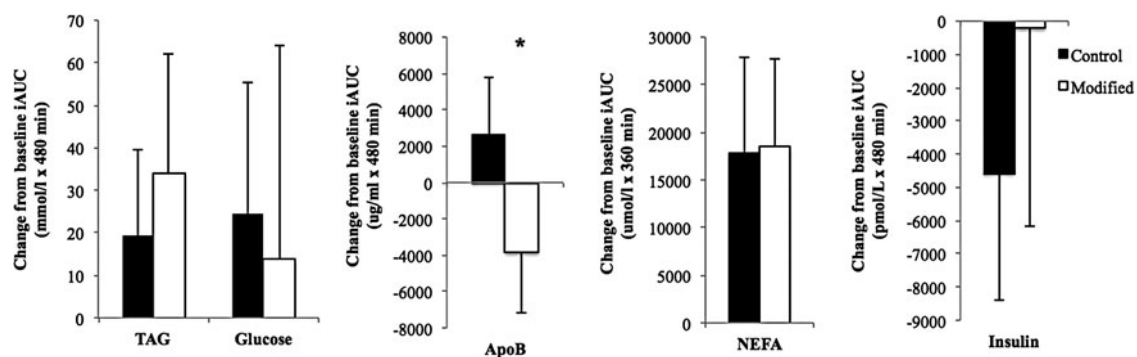
## Impact of chronic consumption of dairy products varying in fatty acid composition on postprandial lipid responses: preliminary insights from the RESET study

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Partial replacement of milk saturated fatty acids (SFA) with unsaturated fatty acids (FA) is feasible through supplementation of the bovine diet with plant oil or oilseeds<sup>(1)</sup>. Consumption of modified dairy products with a SFA-reduced, monounsaturated fat (MUFA)-enriched content may have a beneficial impact on the fasting lipid profile<sup>(1)</sup> but their influence on postprandial triacylglycerol (TAG) concentrations, an independent risk factor for CVD<sup>(2)</sup>, requires investigation. We examined whether consumption of FA-modified dairy products improved postprandial lipid, glucose and insulin responses, when compared to dairy products with a FA composition typical of retail products (control).

We conducted a 12-week, randomised, crossover, double-blinded controlled dietary intervention in fifty-two adults at moderate CVD risk (31 men, 21 women; age 53 (SE 2) years; BMI 25.9 (SE 0.5) kg/m<sup>2</sup>) (REplacement of SaturatEd fat in dairy on Total cholesterol (RESET) study; ClinicalTrials.gov: NCT02089035). A flexible food-exchange model was used to implement each iso-energetic high-fat (38 %TE), high-dairy diet that contained UHT milk, cheese and butter: control (dietary target: 19 %TE SFA; 11 %TE MUFA) and modified (16 %TE SFA; 14 %TE MUFA). Before and after each intervention period, participants underwent a sequential two-meal postprandial investigation in which blood samples were collected at regular intervals following a test breakfast (50 g fat) and lunch (30 g fat) rich in control or modified dairy products, given at 0 and 330 min respectively. Changes from the baseline study visit in postprandial serum TAG, glucose, apolipoprotein B (apoB) and non-esterified FAs (NEFA) and plasma insulin response were reported as incremental area under the curve (iAUC; Fig. 1). Data were analysed using mixed models, with baseline values of the assessed variable, period, treatment, age, gender and BMI included as fixed effects.



**Fig. 1.** Change from the baseline study visit in postprandial lipid, glucose and insulin responses following consumption of sequential high-fat meals that incorporated control and modified dairy products. Values are means with their standard errors represented by vertical bars. \* $P < 0.01$  (treatment effect). iAUC, incremental area under the curve; TAG, triacylglycerol; apoB, apolipoprotein B; NEFA, non-esterified FAs.

A differential effect was observed for the apoB iAUC, with a decrease observed following the modified diet ( $P = 0.004$ ), compared with following the control dairy products. No significant differences in iAUC for the TAG, glucose, NEFA or insulin responses were evident between diets. Chronic consumption of SFA-reduced, MUFA-enriched dairy products decreased the postprandial apoB response suggesting an impact of the FA-modified dairy on the metabolism of TAG-rich lipoproteins, which warrants further investigation.

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1. Markey *et al.* (2014) *Nutr Bull* 39, 161–171.
2. Bansal *et al.* (2007) *JAMA* 298, 309–16.