

# Relationship between the consumption of dairy foods and markers of glycaemic control: evidence from the Caerphilly prospective cohort study

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Evidence from large prospective cohort studies suggests that dairy consumption has a neutral or moderately beneficial effect on type 2 diabetes (T2D) risk<sup>(1)</sup>, but the effect of different types of dairy foods remains uncertain<sup>(2)</sup>. The aim of the present study was to investigate the cross-sectional and the prospective association between total dairy, milk, cheese, cream and butter consumption and markers of glycaemic control.

Analysis was performed at baseline and after a 5-year follow-up using data from the Caerphilly Prospective Cohort study (CAPs)<sup>(3)</sup> which included 2512 men aged 45–59 years, who were free of cardiovascular diseases, T2D, and cancer at baseline, and followed up at 5-year intervals for over 20- years. A semi-quantitative food frequency questionnaire estimated the intake of foods and nutrients. In total, 1350 men with available dietary, anthropometric, glucose and insulin data were included in the current analysis. ANOVA and Chi-square tests determined differences in nutrient intakes and other characteristics at baseline when data were stratified according to quartiles of total dairy intake. Cross-sectional analysis was conducted at baseline using a one-way ANOVA (unadjusted data) and analysis of variance with covariates (ANCOVA), adjusted for reported confounders of the relationship between dairy and glycaemic control in three separate gradually adjusted models. For the longitudinal analysis, ANOVA (unadjusted data) was performed to investigate the change after a 5-year follow-up from baseline in serum glucose, insulin, and estimates of insulin resistance. For the longitudinal analysis the ANCOVA was corrected for the covariates (age, BMI, and total energy intake) at baseline in separate progressively adjusted models and was further adjusted for the baseline outcome of interest.

The mean  $\pm$  SD intake of milk, cheese, cream, and butter in the cohort was 289  $\pm$  182 g/d, 18.4  $\pm$  12.4 g/d, 1.8  $\pm$  3.8 g/d and 24.7  $\pm$  19.9 g/d respectively. At baseline, subjects in the highest quartile of total dairy intake were significantly more likely to be smokers, drank less alcohol, had a higher total energy intake, and consumed more protein, fat, sugar, and eggs compared to individuals in the lowest quartile ( $P < 0.05$ ). No associations were observed between the levels of total dairy, milk, cheese, cream, or butter consumption cross-sectionally as well as changes in plasma glucose, insulin, and indices of insulin resistance after a 5-year follow-up. Correcting for covariates did not impact these relationships.

A neutral effect of total dairy and types of dairy product intake on markers of glycaemic control was observed. More suitably powered human prospective cohort studies with longer periods of follow up are needed in healthy and at-risk UK populations to interpret the role of both the amount and type of dairy on measures of glycaemic control and the underlying mechanisms involved.

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## References

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