Dairy foods and body mass index over 20-years: evidence from Caerphilly Prospective Study

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The prevalence of obesity has reached epidemic proportions with more than 600 million adults worldwide classified as clinically obese (body mass index (BMI) $\geq 30\text{ kg/m}^2$)\textsuperscript{1}. Among the various approaches to tackle obesity and its comorbidities, a healthy diet is one of the key determinants for reducing obesity\textsuperscript{2}. Given that dairy products are naturally rich in protein and essential micronutrients, they are recommended as an integral part of a healthy diet by many countries\textsuperscript{3}. However, dairy is also a major contributor to saturated fatty acids (SFA) and energy intake\textsuperscript{4}, thus their role in development of obesity has been questioned and explored by several studies\textsuperscript{5}. We investigated the association between total dairy, milk, cheese, cream and butter consumption with BMI over a 20-year follow-up using the Caerphilly prospective study (CAPS).

The CAPS included 2512 men aged 45–59 years, who were followed up at 5-year intervals for over 20-years. The associations of total dairy, milk, cheese and butter consumption with BMI were examined cross-sectionally at baseline and longitudinally at 5, 10, 15 and 20-years follow-ups. General linear regression and logistic regression were used for data analysis.

Men free of cardiovascular disease and diabetes ($n = 1704$) were included in the current analysis. Higher cheese consumption was associated with lower BMI at the 5-year follow-up ($P = 0.002$) and milk consumption ($P < 0.001$) were inversely associated with BMI at baseline. For the future studies, the association between cheese consumption and BMI requires further investigation.

\begin{table}[h]
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\begin{tabular}{lccccc}
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\multicolumn{2}{l}{Cheese intake (g/d)} & 0$\leq$ cheese $<$ 11 & 11$\leq$ cheese $<$ 16 & 16$\leq$ cheese $<$ 22 & 22$\leq$ cheese $<$ 130 & $P$ for trend \\
\hline
Longitudinal analysis at 5-years & Participants, n & 366 & 429 & 460 & 409 & \\
BMI mean change from baseline (SD), kg/m\textsuperscript{2} & 0.4 (1.4) & 0.2 (1.5) & 0.3 (1.4) & 0.4 (1.5) & \\
Unadjusted Coef. (SE) & ref & $-0.120$ (0.105) & $-0.099$ (0.104) & $-0.285$ (0.106) & 0.015 & \\
Multivariate model 1, Coef. (SE)\textsuperscript{a} & ref & $-0.125$ (0.105) & $-0.103$ (0.105) & $-0.286$ (0.110) & 0.017 & \\
Multivariate model 2, Coef. (SE)\textsuperscript{b} & ref & $-0.124$ (0.105) & $-0.129$ (0.106) & $-0.317$ (0.113) & 0.008 & \\
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\end{tabular}
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\textsuperscript{a}Model 1: Multivariable-adjusted model adjusted for age, social class (manual and non-manual workers), alcohol intake (non-drinker, drinker has been divided into 3 equal groups), smokers (non-smoker, current smoker, previous smoker), leisure activity (yes and no), food energy intake, and BMI at baseline.

\textsuperscript{b}Model 2: Model 1 and additionally adjusted for protein intake, fat intake, fibre intake (vegetable fibre and cereal fibre).