

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) ≥ 30 kg/m²)⁽¹⁾. Among the various approaches to tackle obesity and its comorbidities, a healthy diet is one of the key determinants for reducing obesity⁽²⁾. Given that dairy products are naturally rich in protein and essential micronutrients, including calcium, potassium and vitamin A⁽³⁾, they are recommended as an integral part of a healthy diet by many countries⁽⁴⁾. However, dairy is also a major contributor to saturated fatty acids (SFA) and energy intake⁽⁵⁾, thus their role in development of obesity has been questioned and explored by several studies⁽⁶⁾. We investigated the association between total dairy, milk, cheese, cream and butter consumption and BMI change 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, cream 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 ($P = 0.008$) but not at later follow-ups. There was no evidence that higher consumption of dairy products was associated with increased BMI during the over 20-years follow-up, although total dairy ($P = 0.002$) 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.

	Cheese intake (g/d)				P for trend
	0 \leq cheese < 11	11 \leq cheese < 16	16 \leq cheese < 22	22 \leq cheese < 130	
Longitudinal analysis at 5-years					
Participants, n	366	429	460	409	
BMI mean change from baseline (SD), kg/m ²	0.4 (1.4)	0.2 (1.5)	0.3 (1.4)	0.1 (1.5)	
Unadjusted Coef. (SE)	ref	-0.120 (0.105)	-0.090 (0.104)	-0.285 (0.106)	0.015
Multivariate model 1, Coef. (SE) ^a	ref	-0.125 (0.105)	-0.103 (0.105)	-0.286 (0.110)	0.017
Multivariate model 2, Coef. (SE) ^b	ref	-0.124 (0.105)	-0.129 (0.106)	-0.317 (0.113)	0.008

^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.

^b Model 2: Model 1 and additionally adjusted for protein intake, fat intake, fibre intake (vegetable fibre and cereal fibre).

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