Dairy product consumption and incident prediabetes in Dutch middle-aged adults: The Hoorn Studies

Isabel AL Slurink[1], Nicole R den Braver[2], Femke Rutters[2], Nina Kupper[1], Tom Smeets[1], Joline WJ Beulens[2,3], Sabita S Soedamah-Muthu[1,4]

1. Center of Research on Psychological and Somatic disorders (CORPS), Department of Medical and Clinical Psychology, Tilburg University, Netherlands. 2. Department of Epidemiology and Data Science, Amsterdam University Medical Centers, location Vrije Universiteit MC, Amsterdam & Amsterdam Public Health research institute, Amsterdam, Amsterdam, The Netherlands. 3. Julius Center for Health Sciences and Primary Care, University Medical Center Utrecht, Utrecht, The Netherlands. 4. Institute for Food, Nutrition and Health, University of Reading, Reading, RG6 6AR United Kingdom.

I.a.l.slurink@tilburguniversity.edu

Background: Evidence from cross-sectional studies suggests that higher dairy product consumption is associated with lower or no risk of prediabetes, an early phase in type 2 diabetes development. We investigated prospective associations of consumption of total dairy and dairy types with incident prediabetes in a Dutch population-based study.
Methods: We calculated relative risks (RRs) between dairy, fermented dairy, milk, yogurt (total, high and low fat), cream and ice cream and prediabetes in 2,262 participants without (pre-)diabetes at enrolment (mean age 56±7.3y; 50% male) from the Hoorn Studies. Additionally, the substitution of one serving/day of dairy types associated with prediabetes with alternative dairy types was examined.
Results: During a mean 6.4 (±0.7) years of follow-up, 810 participants (35.8%) developed prediabetes. High fat fermented dairy, cheese and high fat cheese were associated with a 17% (RR 0.83, 95%CI 0.69 - 0.99, p_{trend}=0.04), 14% (RR 0.86, 95%CI 0.73-1.02, p_{trend}=0.04) and 21% (RR 0.79, 95%CI 0.66-0.94, p_{trend}=0.01) lower risk of incident prediabetes, respectively, in higher compared to lower quartiles, after adjustment for risk factors (demographic, lifestyle and dietary intake). High fat cheese consumption was linearly associated with a lower risk of prediabetes ($RR_{servings/day}$ 0.94, 95%CI 0.88-1.00, p=0.04). Total dairy and other dairy types were not associated with prediabetes risk in multivariate adjusted models, irrespective of fat content (RR~1). None of the substitutions for high fat cheese were associated with prediabetes risk.
Conclusion: In this Dutch population-based cohort, a high intake of high-fat fermented dairy, cheese and high fat cheese were associated with a lower risk of prediabetes, whereas other dairy types were not associated. Cheese seems to be beneficial in diabetes prevention, despite high levels of saturated fatty acids and sodium.