

Supplemental material

Supplemental Table S1. Description of different dairy products considered in the different categories of main food groups as baseline exposures.

Food groups categories	Specific sub-groups
All dairy products	Whole- fat milk Semi/skimmed milk Condensed milk Cream or milk cream Milkshakes Whole yogurt Skimmed yogurt Petit-suisse Cottage cheese or curd Portioned or creamy cheese Cured and semi-cured cheeses Fresh cheese Custard, flan, pudding Ice-creams
Whole-fat dairy product consumption	Whole- fat milk Condensed milk Cream or milk cream Milkshakes Whole yogurt/ Petit-suisse Portioned or creamy cheese Custard, flan, pudding Ice-creams Cured and semi-cured cheeses
Low-fat dairy product consumption	Semi/skimmed milk Skimmed yogurt Fresh cheese
Fermented dairy product consumption	Whole yogurt Skimmed yogurt Petit-suisse Cottage cheese or curd/Fresh cheese Portioned or creamy cheese Cured and semi-cured cheeses Fresh cheese

Supplemental Table S2: Hazard ratio (HR) and 95% confidence intervals (CI) of confirmed breast cancer cases according to the categories of baseline total dairy, whole-fat, low-fat and fermented dairy product consumption among 10,930 women of the SUN Project.

	Dairy product consumption				<i>P for trend</i>
	Q1 (Ref)	Q2	Q3	Q4	
N	2733	2732	2733	2732	
Median Dairy product	1.6	2.5	3.4	4.8	
Cases	41	23	19	36	
Person-years of follow-up	30,609	30,506	31,368	30,811	
Incidence rate/10,000 person-years	13.39	7.53	6.05	11.68	
Age-adjusted HR (95% CI)	1.00 (Ref.)	0.59 (0.35-0.99)	0.45 (0.26-0.78)	0.89(0.57-1.39)	0.461
Multivariable adjusted model 1	1.00 (Ref.)	0.64 (0.37-1.09)	0.53 (0.28-1.00)	1.19 (0.61-2.31)	0.843
Multivariable adjusted model 2	1.00 (Ref.)	0.62 (0.36-1.07)	0.51 (0.27-0.97)*	1.15 (0.58-2.26)	0.924
	Whole-fat dairy product consumption				<i>P for trend</i>
	Q1 (Ref)	Q2	Q3	Q4	
N	2733	2732	2733	2732	
Median whole-fat dairy product	0.6	1.19	1.18	3.1	
Cases	29	32	28	30	
Person-years of follow-up	29,397	29,672	31,367	32,859	
Incidence rate/10,000 person-years	9.86	10.78	8.92	9.12	
Age-adjusted HR (95% CI)	1.00 (Ref.)	1.19 (0.71-1.97)	1.01 (0.60-1.72)	1.09 (0.65-1.83)	0.889
	Low-fat dairy product consumption				<i>P for trend</i>
	Q1 (Ref)	Q2	Q3	Q4	
N	2,733	2732	2,733	2732	
Median low-fat dairy product	0.67	0.68	1.5	3	
Cases	44	23	24	28	
Person-years of follow-up	33,043	30,357	29,727	29,727	
Incidence rate/10,000 person-years	13.31	7.57	8.07	9.28	
Age-adjusted HR (95% CI)	1.00 (Ref.)	0.57 (0.34-0.95)	0.58 (0.35-0.96)	0.63 (0.39-1.03)	0.070
	Fermented dairy product consumption				<i>P for trend</i>
	Q1 (Ref)	Q2	Q3	Q4	
N	2733	2732	2733	2732	
Median fermented dairy product	0.5	1.04	1.6	2.6	
Cases	30	29	33	27	
Person-years of follow-up	31,229	30,973	30,896	30,196	
Incidence rate/10,000 person-years	9.60	9.36	10.68	8.94	
Age-adjusted HR (95% CI)	1.00 (Ref.)	0.99 (0.59 - 1.65)	1.08 (0.66-1.78)	0.91 (0.54-1.53)	0.835

p* value < 0.05. Results from Cox regression models. All Cox models were stratified for age (decades) and recruitment period. **Model 1 additionally adjusted for height, years at university, family history of BC (none, after 45 years or before 45 years), smoking status (never smoker, former smoker, current smoker), lifetime tobacco exposure (pack-years), physical activity (Mets-h/week), TV-watching (h/day), alcohol intake (g/day, continuous), BMI (<25, 25-<30, ≥30), age of menarche (<10 years, 10–11 years, 12–13 years, ≥14 years), age at menopause (<50 years, ≥50 years), history of pregnancy (age <25 years & nulliparous, age ≥25 years & nulliparous, first pregnancy before 25 years, first pregnancy between 25 & 30 years of age, first pregnancy being 30 years old or older), months of breastfeeding (continuous), use of hormone replacement therapy (yes/no) and its duration (continuous), energy intake(kcal/day), energy-adjusted intake of calcium, vitamin D and saturated fat from non-dairy products (tertiles), coffee consumption (<1, ≥1), sugar-sweetened beverage consumption (never/seldom, ≥1 serving per week) and oral contraceptives (yes/no). **Model 2** additionally adjusted for Mediterranean Diet Adherence Screener (score MEDAS without alcohol and dairy product items) (continuous).

Supplemental Table S3: Hazard ratio (HR) and 95% confidence intervals (CI) of confirmed premenopausal breast cancer cases according to the categories of baseline total dairy, whole-fat, low-fat and fermented dairy product consumption among 9,971 women of the SUN Project.

	Dairy product consumption				<i>P for trend</i>
	Q1 (Ref)	Q2	Q3	Q4	
Premenopausal BC					
N	2493	2493	2493	2492	
Median dairy product	1.8	2.7	3.6	4.9	
Incident Cases	20	16	9	22	
Person-years of follow-up	23,954	24,344	25,245	24,389	
Incidence rate/10,000 person-years	8.34	6.57	3.56	9.02	
Age-adjusted HR (95% CI)	1.00 (Ref.)	0.84 (0.43- 1.62)	0.42 (0.19-0.92)	1.08 (0.58-1.98)	0.933
Multivariable adjusted model 1	1.00 (Ref.)	0.88 (0.44-1.77)	0.50 (0.19-1.26)	1.37 (0.59-3.20)	0.447
Multivariable adjusted model 2	1.00 (Ref.)	0.88 (0.43- 1.78)	0.49 (0.19-1.27)	1.36 (0.58-3.22)	0.456
	Whole-fat dairy product consumption				<i>P for trend</i>
	Q1 (Ref)	Q2	Q3	Q4	
Premenopausal BC					
N	2493	2493	2493	2492	
Mean whole-fat dairy product	0.6	1.2	1.8	3	
Incident cases	16	14	17	20	
Person-years of follow-up	21,544	23,534	25,522	27,332	
Incidence rate/10,000 person-years	7.42	5.94	6.66	7.31	
Age-adjusted HR (95% CI)	1.00 (Ref.)	0.76 (0.37-1.57)	0.94 (0.47-1.85)	1.08 (0.56-2.08)	0.603
Multivariable adjusted model 1	1.00 (Ref.)	0.75 (0.36-1.58)	0.95 (0.48-1.88)	1.17 (0.62-2.21)	0.416
Multivariable adjusted model 2	1.00 (Ref.)	0.75 (0.36-1.57)	0.95 (0.48-1.89)	1.17 (0.61-2.22)	0.423
	Low-fat dairy product consumption				<i>P for trend</i>
	Q1 (Ref)	Q2	Q3	Q4	
Premenopausal BC					
N	2493	2493	2493	2492	
Median low-fat dairy product	0.1	1	1.7	3	
Incident cases	29	9	13	16	
Person-years of follow-up	26,719	24,414	23,747	23,052	
Incidence rate/10,000 person-years	10.85	3.68	5.47	6.94	
Age-adjusted HR (95% CI)	1.00 (Ref.)	0.40 (0.19-0.83)	0.49 (0.25-0.95)	0.60 (0.32-1.12)	0.159
Multivariable adjusted model 1	1.00 (Ref.)	0.41 (0.19- 0.85)	0.48 (0.23- 0.99)	0.56 (0.24-1.30)	0.207
Multivariable adjusted model 2	1.00 (Ref.)	0.41 (0.19- 0.86)*	0.48 (0.23-1.00)*	0.56 (0.24-1.30)	0.207
	Fermented dairy product consumption				<i>P for trend</i>
	Q1 (Ref)	Q2	Q3	Q4	
Premenopausal BC					
N	2493	2493	2493	2492	
Median fermented dairy product	0.6	1	1.7	2.7	
Incident cases	16	13	23	15	
Person-years of follow-up	24,455	25,100	24,333	24,044	
Incidence rate/10,000 person-years	6.54	5.17	9.45	6.23	
Age-adjusted HR (95% CI)	1.00 (Ref.)	0.80 (0.38-1.67)	1.37 (0.72-2.60)	0.90 (0.44-1.82)	0.995
Multivariable adjusted model 1	1.00 (Ref.)	0.86 (0.40-1.88)	1.53 (0.78- 2.98)	1.10 (0.54-2.24)	0.555
Multivariable adjusted model 2	1.00 (Ref.)	0.86 (0.39-1.89)	1.53 (0.78-2.98)	1.10 (0.56-2.24)	0.552

p* value < 0.05. Results from Cox regression models. All Cox models were stratified for age (decades) and recruitment period. **Model 1 additionally adjusted for height, years at university, family history of BC (none, after 45 years or before 45 years), smoking status (never smoker, former smoker, current smoker), lifetime tobacco exposure (pack-years), physical activity (Mets/week), hours tv, alcohol intake (g/day,

continuous), BMI (<25 , $25\text{--}30$, ≥ 30), age of menarche (<10 years, 10–11 years, 12–13 years, ≥ 14 years), history of pregnancy (age <25 years & nulliparous, age ≥ 25 years & nulliparous, first pregnancy before 25 years, first pregnancy between 25 & 30 years of age, first pregnancy being 30 years old or older), months of breastfeeding (continuous), energy intake (kcal/day), energy-adjusted intake of calcium, vitamin D and saturated fat from non-dairy products (tertiles), coffee consumption (<1 and ≥ 1), sugar-sweetened beverage consumption (never/seldom, ≥ 1 serving per week) and oral contraceptives (yes/no). **Model 2** additionally adjusted for Mediterranean Diet Adherence Screener (score MEDAS without alcohol and dairy product items) (continuous).

Supplemental Table S4: Hazard ratio (HR) and 95% confidence intervals (CI) of confirmed postmenopausal breast cancer cases according to the categories of baseline total dairy, whole-fat, low-fat and fermented dairy product consumption among 3,299 women of the SUN Project.

	Dairy product consumption				
	Q1 (Ref)	Q2	Q3	Q4	<i>P for trend</i>
Postmenopausal BC					
N	825	825	825	824	
Median dairy product	1.7	2.6	3.6	5	
Incident Cases	15	10	7	11	
Person-years of follow-up	5,938	5,252	5,403	5,891	
Incidence rate/10,000 person-years	30.31	13.32	12.95	18.67	
Age-adjusted HR (95% CI)	1.00 (Ref.)	0.38 (0.15-0.91)	0.37 (0.15-0.89)	0.58 (0.27-1.24)	0.178
Multivariable adjusted model 1	1.00 (Ref.)	0.37 (0.16-0.86)	0.34 (0.13-0.89)	0.60 (0.20-1.76)	0.484
Multivariable adjusted model 2	1.00 (Ref.)	0.37 (0.15-0.87)*	0.34 (0.13-0.88)*	0.60 (0.21-1.74)	0.486
	Whole-fat dairy product consumption				
	Q1 (Ref)	Q2	Q3	Q4	<i>P for trend</i>
Postmenopausal BC					
N	825	825	825	824	
Median whole-fat dairy	0.5	1	1.6	2.9	
Incident Cases	10	15	9	9	
Person-years of follow-up	7,164	5,578	5,078	4,664	
Incidence rate/10,000 person-years	16.74	23.30	19.69	17.15	
Age-adjusted HR (95% CI)	1.00 (Ref.)	1.55 (0.69-3.46)	0.94 (0.38-2.33)	0.98 (0.39-2.44)	0.666
Multivariable adjusted model 1	1.00 (Ref.)	1.86 (0.78-4.46)	1.08 (0.40-2.95)	0.89 (0.35-2.28)	0.394
Multivariable adjusted model 2	1.00 (Ref.)	1.86 (0.78-4.46)	1.09 (0.40-2.97)	0.89 (0.34-2.31)	0.404
	Low-fat dairy product consumption				
	Q1 (Ref)	Q2	Q3	Q4	<i>P for trend</i>
Postmenopausal BC					
N	825	825	825	824	
Median low-fat dairy	0.1	1	2	3.4	
Incident Cases	13	11	11	8	
Person-years of follow-up	5,396	5,175	5,367	6,546	
Incidence rate/10,000 person-years	24.09	21.25	16.76	15.27	
Age-adjusted HR (95% CI)	1.00 (Ref.)	0.85 (0.39-1.88)	0.62 (0.26-1.47)	0.58 (0.24-1.39)	0.186
Multivariable adjusted model 1	1.00 (Ref.)	1.07 (0.46-2.49)	0.90 (0.36-2.29)	0.95 (0.35-2.59)	0.848
Multivariable adjusted model 2	1.00 (Ref.)	1.07 (0.46-2.48)	0.90 (0.36-2.30)	0.95 (0.35-2.59)	0.853
	Fermented dairy product consumption				
	Q1 (Ref)	Q2	Q3	Q4	<i>P for trend</i>
Postmenopausal BC					
N	825	825	825	824	
Median fermented dairy	0.6	1	1.7	2.8	
Incident Cases	12	12	9	10	
Person-years of follow-up	5,980	5,152	5,745	5,607	
Incidence rate/10,000 person-years	20.06	23.28	15.66	17.83	
Age-adjusted HR (95% CI)	1.00 (Ref.)	0.95 (0.42-2.12)	0.69 (0.29-1.66)	0.81 (0.34-1.88)	0.555
Multivariable adjusted model 1	1.00 (Ref.)	1.16 (0.49-2.77)	0.90 (0.40-2.03)	1.16 (0.46-2.93)	0.855
Multivariable adjusted model 2	1.00 (Ref.)	1.16 (0.48-2.77)	0.90 (0.40-2.03)	1.15 (0.46-2.92)	0.860

p* value < 0.05. Results from Cox regression models. All Cox models were stratified for age (decades) and recruitment period. **Model 1 additionally adjusted for height, years at university, family history of BC (none, after 45 years or before 45 years), smoking status (never smoker, former smoker, current smoker),

lifetime tobacco exposure (pack-years), physical activity (Mets/week), hours tv, alcohol intake (g/day, continuous), BMI (<25, 25–<30, ≥30), age of menarche (<10 years, 10–11 years, 12–13 years, ≥14 years), age at menopause (<50 years, ≥50 years), history of pregnancy (age <25 years & nulliparous, age ≥25 years & nulliparous, first pregnancy before 25 years, first pregnancy between 25 & 30 years of age, first pregnancy being 30 years old or older), months of breastfeeding (continuous), use of hormone replacement therapy (yes/no) and its duration (continuous), energy intake (kcal/day), energy-adjusted intake of calcium, vitamin D and saturated fat from non-dairy products (tertiles), coffee consumption (<1 and ≥1), sugar-sweetened beverage consumption (never/seldom, ≥1 serving per week) and oral contraceptives (yes/no). **Model 2** additionally adjusted for Mediterranean Diet Adherence Screener (score MEDAS without alcohol and dairy product items) (continuous).