Table S1. Hazard ratios (95% CI) of cause-specific cancer mortality according to intakes of total dairy and subtypes of dairy by pooling the NHS, NHSII, and HPFS.

	Dairy intake (servings)					HR (95% CI) for 1-serving/d increment	P for trend
	Category 1	Category 2	Category 3	Category 4	Category 5		
Total dairy intake	Q1	Q2	Q3	Q4	Q5		
Colorectal cancer	1.00	0.92 (0.78, 1.10)	0.95 (0.80, 1.13)	0.91 (0.75, 1.09)	1.00 (0.83, 1.21)	1.01 (0.95, 1.07)	0.86
Other cancers	1.00	0.94 (0.89, 1.00)	0.99 (0.93, 1.04)	1.04 (0.98, 1.10)	1.05 (0.99, 1.11)	1.03 (1.01, 1.05)	0.003
Pancreatic cancer	1.00	0.88 (0.73, 1.07)	1.06 (0.87, 1.28)	1.11 (0.92, 1.35)	1.06 (0.86, 1.31)	1.05 (0.98, 1.12)	0.14
Lung cancer	1.00	1.01 (0.90, 1.13)	0.95 (0.84, 1.07)	1.05 (0.94, 1.18)	1.09 (0.96, 1.23)	1.03 (0.99, 1.07)	0.11
Breast cancer (women only)	1.00	0.95 (0.81, 1.12)	0.92 (0.78, 1.09)	1.04 (0.88, 1.24)	1.03 (0.85, 1.24)	1.03 (0.97, 1.08)	0.34
Ovarian cancer (women only)	1.00	0.89 (0.69, 1.15)	1.05 (0.81, 1.34)	1.05 (0.82, 1.36)	1.14 (0.87, 1.50)	1.08 (0.99, 1.17)	0.08
Endometrial cancer (women only)	1.00	1.07 (0.74, 1.55)	0.96 (0.65, 1.41)	1.12 (0.76, 1.65)	1.05 (0.69, 1.60)	1.01 (0.89, 1.15)	0.88
Prostate cancer (men only)	1.00	0.91 (0.73, 1.13)	0.95 (0.77, 1.18)	1.20 (0.97, 1.48)	1.10 (0.88, 1.37)	1.06 (0.99, 1.13)	0.09
Skim/low-fat milk	<1/wk	1-4/wk	4/wk-1.5/d	≥1.5/d		HR (95% CI) for 0.5-serving/d increment	P for trend
Colorectal cancer	1.00	0.84 (0.72, 0.99)	0.80 (0.69, 0.94)	0.80 (0.67, 0.96)		0.95 (0.92, 1.00)	0.04
Other cancers	1.00	0.99 (0.94, 1.04)	1.01 (0.96, 1.06)	1.05 (0.99, 1.11)		1.01 (0.99, 1.03)	0.08
Pancreatic cancer	1.00	1.03 (0.87, 1.23)	0.99 (0.83, 1.18)	1.04 (0.85, 1.27)		1.00 (0.96, 1.05)	0.84
Lung cancer	1.00	0.98 (0.88, 1.08)	1.03 (0.93, 1.14)	1.09 (0.97, 1.22)		1.02 (0.99, 1.05)	0.13
Breast cancer (women only)	1.00	0.91 (0.77, 1.06)	0.93 (0.80, 1.09)	0.96 (0.81, 1.15)		1.00 (0.96, 1.04)	0.96
Ovarian cancer (women only)	1.00	1.00 (0.79, 1.26)	1.03 (0.82, 1.30)	1.13 (0.87, 1.47)		1.02 (0.97, 1.08)	0.38
Endometrial cancer (women only)	1.00	0.77 (0.55, 1.09)	0.71 (0.51, 0.99)	0.92 (0.64, 1.34)		1.01 (0.93, 1.10)	0.71
Prostate cancer (men only)	1.00	1.03 (0.85, 1.25)	1.18 (0.98, 1.42)	1.19 (0.97, 1.46)		1.03 (0.99, 1.08)	0.10
Whole milk	<1/mo	1-3/mo	3/mo -2/wk	≥2/wk		HR (95% CI) for 0.5-serving/d increment	P for trend
Colorectal cancer	1.00	1.14 (0.95, 1.36)	1.08 (0.89, 1.32)	1.02 (0.85, 1.23)		1.03 (0.88, 1.20)	0.70
Other cancers	1.00	0.99 (0.93, 1.05)	1.02 (0.96, 1.08)	1.15 (1.09, 1.21)		1.13 (1.08, 1.18)	<0.001
Pancreatic cancer	1.00	0.80 (0.64, 1.01)	1.16 (0.95, 1.42)	1.06 (0.87, 1.30)		1.08 (0.91, 1.28)	0.37
Lung cancer	1.00	1.05 (0.93, 1.19)	1.15 (1.02, 1.30)	1.32 (1.19, 1.48)		1.28 (1.17, 1.41)	<0.001

	<1/wk	1-4/wk	4/wk-1.5/d	≥1.5/d	HR (95% CI) for 0.5-serving/d increment	P for trend
Breast cancer (women only)	1.00	1.06 (0.89, 1.27)	0.92 (0.76, 1.11)	1.03 (0.86, 1.23)	1.01 (0.86, 1.20)	0.88
Ovarian cancer (women only)	1.00	1.20 (0.93, 1.55)	1.06 (0.81, 1.38)	1.44 (1.13, 1.82)	1.35 (1.10, 1.67)	0.005
Endometrial cancer (women only)	1.00	0.36 (0.20, 0.65)	0.86 (0.58, 1.28)	0.95 (0.65, 1.39)	0.99 (0.70, 1.40)	0.95
Prostate cancer (men only)	1.00	1.22 (0.98, 1.53)	1.13 (0.88, 1.45)	1.39 (1.14, 1.69)	1.28 (1.10, 1.50)	0.002
Cheese	<1/wk	1-4/wk	4/wk-1.5/d	≥1.5/d	HR (95% CI) for 0.5-serving/d increment	P for trend
Colorectal cancer	1.00	1.06 (0.89, 1.27)	1.01 (0.83, 1.24)	1.29 (0.94, 1.77)	1.05 (0.97, 1.13)	0.24
Other cancers	1.00	0.96 (0.91, 1.02)	1.01 (0.95, 1.08)	1.01 (0.91 1.12)	1.02 (0.99, 1.05)	0.19
Pancreatic cancer	1.00	0.97 (0.79, 1.18)	1.06 (0.85, 1.32)	1.26 (0.88, 1.81)	1.06 (0.96, 1.16)	0.22
Lung cancer	1.00	1.05 (0.93, 1.18)	1.13 (0.99, 1.28)	1.01 (0.80, 1.28)	1.03 (0.97, 1.09)	0.31
Breast cancer (women only)	1.00	0.99 (0.82, 1.20)	1.03 (0.84, 1.27)	1.21 (0.88, 1.67)	1.05 (0.97, 1.14)	0.22
Ovarian cancer (women only)	1.00	0.92 (0.69, 1.22)	1.03 (0.76, 1.40)	1.15 (0.71, 1.85)	1.08 (0.95, 1.22)	0.22
Endometrial cancer (women only)	1.00	0.81 (0.54, 1.21)	0.73 (0.47, 1.13)	0.88 (0.42, 1.85)	0.92 (0.75, 1.11)	0.37
Prostate cancer (men only)	1.00	0.94 (0.78, 1.12)	0.87 (0.71, 1.07)	1.04 (0.73, 1.49)	0.98 (0.89, 1.07)	0.69

Multivariable-adjusted model was further adjusted for family history of cancer (yes, no), family history of cardiovascular disease (yes, no), baseline disease status (hypertension, hypercholesterolemia), baseline BMI (<20.9, 21.0–22.9, 23.0–24.9, 25.0–29.9, 30.0–34.9, ≥35.0 kg/m^2), physical activity (<3.0, 3.0–8.9, 9.0–17.9, 18.0–26.9, ≥27.0 MET-h/wk), overall dietary pattern (AHEI score, in quintiles), total energy intake (quintiles), smoking status (NHS and HPFS: never, former [1–4 cigarettes per day], former [5–14 cigarettes per day], former [15–24 cigarettes per day], former [25–34 cigarettes per day], former [35–44 cigarettes per day], former [45 or more cigarettes per day], former [unknown cigarettes per day], current [1–4 cigarettes per day], current [5–14 cigarettes per day], current [15–24 cigarettes per day], current [25–34 cigarettes per day], current [35–44 cigarettes per day], current [45 or more cigarettes per day], current [unknown cigarettes per day]), alcohol consumption (0, 0–5, 5–10, 10–15, ≥15g/d), postmenopausal status (yes vs no, women only) and current postmenopausal hormone use (yes vs no, women only). Subtypes of dairy foods were adjusted for each other.

Table S2. Hazard ratios (95% CI) of total, CVD, and cancer mortality using time-varying dairy intake updated every four years as main exposure in the NHS, NHSII, and HPFS.

	Frequency of consumption					HR (95% CI) for 1-serving/d increment	P for trend
	Q1	Q2	Q3	Q4	Q5		
Total mortality							
NHS	1.00	0.94 (0.90, 0.99)	0.96 (0.91, 1.01)	0.99 (0.94, 1.04)	0.99 (0.94, 1.05)	1.01 (0.99, 1.02)	0.55
NHSII	1.00	0.95 (0.81, 1.13)	0.84 (0.70, 1.01)	0.94 (0.78, 1.13)	0.95 (0.78, 1.17)	1.00 (0.95, 1.04)	0.83
HPFS	1.00	0.95 (0.90, 1.01)	0.97 (0.92, 1.03)	0.99 (0.93, 1.04)	1.03 (0.97, 1.09)	1.02 (1.00, 1.03)	0.08
Pooled	1.00	0.95 (0.91, 0.98)	0.96 (0.93, 1.00)	0.99 (0.95, 1.02)	1.01 (0.97, 1.05)	1.01 (0.99, 1.02)	0.13
CVD mortality							
NHS	1.00	0.86 (0.77, 0.96)	0.89 (0.79, 1.00)	0.93 (0.82, 1.04)	0.98 (0.87, 1.11)	1.01 (0.97, 1.05)	0.70
NHSII	1.00	0.74 (0.44, 1.25)	0.91 (0.53, 1.55)	1.47 (0.88, 2.44)	0.96 (0.52, 1.78)	1.05 (0.93, 1.19)	0.42
HPFS	1.00	0.96 (0.87, 1.06)	0.97 (0.88, 1.07)	0.99 (0.90, 1.09)	0.95 (0.86, 1.05)	0.99 (0.96, 1.02)	0.44
Pooled	1.00	0.91 (0.85, 0.98)	0.94 (0.87, 1.01)	0.97 (0.90, 1.04)	0.96 (0.89, 1.04)	1.00 (0.97, 1.02)	0.83
Cancer mortality							
NHS	1.00	0.96 (0.88, 1.04)	0.95 (0.88, 1.04)	1.09 (1.01, 1.19)	1.00 (0.91, 1.09)	1.02 (0.99, 1.05)	0.26
NHSII	1.00	0.93 (0.74, 1.16)	0.77 (0.60, 0.99)	0.86 (0.67, 1.11)	0.96 (0.73, 1.27)	1.00 (0.94, 1.06)	0.91
HPFS	1.00	0.98 (0.89, 1.08)	0.96 (0.87, 1.06)	1.04 (0.94, 1.15)	1.13 (1.02, 1.25)	1.05 (1.02, 1.09)	0.002
Pooled	1.00	0.96 (0.91, 1.02)	0.95 (0.89, 1.01)	1.06 (0.99, 1.12)	1.05 (0.98, 1.12)	1.03 (1.01, 1.05)	0.007

Multivariable-adjusted model was further adjusted for family history of cancer (yes, no), family history of cardiovascular disease (yes, no), baseline disease status (hypertension, hypercholesterolemia), baseline BMI (<20.9, 21.0–22.9, 23.0–24.9, 25.0–29.9, 30.0–34.9, ≥35.0 kg/m^2), physical activity (<3.0, 3.0–8.9, 9.0–17.9, 18.0–26.9, ≥27.0 MET-h/wk), overall dietary pattern (AHEI score, in quintiles), total energy intake (quintiles), smoking status (NHS and HPFS: never, former [1–4 cigarettes per day], former [5–14 cigarettes per day], former [15–24 cigarettes per day], former [25–34 cigarettes per day], former [35–44 cigarettes per day], former [45 or more cigarettes per day], former [unknown cigarettes per day], current [1–4 cigarettes per day], current [5–14 cigarettes per day], current [15–24 cigarettes per day], current [25–34 cigarettes per day], current [35–44 cigarettes per day], current [45 or more cigarettes per day], current [unknown cigarettes per day]), alcohol consumption (0, 0–5, 5–10, 10–15, ≥15g/d), postmenopausal status (yes vs no, women only) and current postmenopausal hormone use (yes vs no, women only).

Table S3. Hazard ratios (95% CI) of total, CVD, and cancer mortality according to quintile of total dairy intake in the NHS, NHSII, and HPFS excluding deaths during the first four years of follow-up.

	Frequency of consumption					HR (95% CI) for 1-serving/d increment	P for trend
	Q1 (mean=0.8 serving/day)	Q2 (mean=1.5 serving/day)	Q3 (mean=2.0 serving/day)	Q4 (mean=2.8 serving/day)	Q5 (mean=4.2 serving/day)		
Total mortality							
NHS	1.00	0.99 (0.95, 1.03)	0.97 (0.93, 1.02)	1.01 (0.97, 1.05)	1.07 (1.03, 1.12)	1.03 (1.01, 1.05)	<0.001
NHSII	1.00	0.96 (0.85, 1.08)	1.01 (0.90, 1.14)	1.02 (0.89, 1.16)	1.18 (1.03, 1.35)	1.04 (1.01, 1.07)	0.008
HPFS	1.00	0.99 (0.95, 1.04)	1.02 (0.97, 1.07)	1.03 (0.99, 1.08)	1.05 (1.00, 1.10)	1.02 (1.00, 1.03)	0.02
Pooled	1.00	0.99 (0.96, 1.02)	1.00 (0.97, 1.03)	1.02 (0.99, 1.05)	1.07 (1.03, 1.10)	1.03 (1.02, 1.04)	<0.001
CVD mortality							
NHS	1.00	0.95 (0.88, 1.03)	0.96 (0.89, 1.03)	0.99 (0.91, 1.07)	1.02 (0.94, 1.10)	1.01 (0.99, 1.04)	0.36
NHSII	1.00	0.89 (0.61, 1.30)	0.97 (0.65, 1.44)	0.93 (0.61, 1.43)	1.33 (0.88, 2.01)	1.07 (0.98, 1.17)	0.14
HPFS	1.00	0.97 (0.90, 1.05)	1.00 (0.92, 1.08)	0.96 (0.89, 1.04)	0.99 (0.91, 1.08)	1.00 (0.97, 1.02)	0.89
Pooled	1.00	0.97 (0.91, 1.03)	0.97 (0.91, 1.03)	0.95 (0.90, 1.02)	1.02 (0.95, 1.08)	1.01 (0.99, 1.03)	0.49
Cancer mortality							
NHS	1.00	0.95 (0.88, 1.02)	0.96 (0.89, 1.04)	0.99 (0.92, 1.07)	1.02 (0.94, 1.10)	1.02 (0.99, 1.04)	0.29
NHSII	1.00	0.86 (0.71, 1.03)	1.05 (0.87, 1.26)	1.07 (0.88, 1.30)	1.19 (0.97, 1.46)	1.05 (1.01, 1.10)	0.02
HPFS	1.00	0.98 (0.90, 1.07)	1.04 (0.96, 1.14)	1.11 (1.02, 1.21)	1.04 (0.95, 1.14)	1.02 (0.99, 1.05)	0.13
Pooled	1.00	0.95 (0.90, 1.01)	1.00 (0.95, 1.06)	1.04 (0.99, 1.10)	1.04 (0.98, 1.10)	1.02 (1.01, 1.04)	0.01

Multivariable-adjusted model was further adjusted for family history of cancer (yes, no), family history of cardiovascular disease (yes, no), baseline disease status (hypertension, hypercholesterolemia), baseline BMI (<20.9, 21.0–22.9, 23.0–24.9, 25.0–29.9, 30.0–34.9, ≥35.0 kg/m^2), physical activity (<3.0, 3.0–8.9, 9.0–17.9, 18.0–26.9, ≥27.0 MET-h/wk), overall dietary pattern (AHEI score, in quintiles), total energy intake (quintiles), smoking status (NHS and HPFS: never, former [1–4 cigarettes per day], former [5–14 cigarettes per day], former [15–24 cigarettes per day], former [25–34 cigarettes per day], former [35–44 cigarettes per day], former [45 or more cigarettes per day], former [unknown cigarettes per day], current [1–4 cigarettes per day], current [5–14 cigarettes per day], current [15–24 cigarettes per day], current [25–34 cigarettes per day], current [35–44 cigarettes per day], current [45 or more cigarettes per day], current [unknown cigarettes per day]), alcohol consumption (0, 0–5, 5–10, 10–15, ≥15g/d), postmenopausal status (yes vs no, women only) and current postmenopausal hormone use (yes vs no, women only).

Table S4. Stratified analysis for the association between total dairy consumption and risk of total mortality by meta-analyzing the NHS, NHSII, and HPFS.

	Q1	Q2	Q3	Q4	Q5	HR (95% CI) for 1-serving/d increment	P for interaction
Disease status							
Without incident cancer or CVD	1.00	1.00 (0.97, 1.04)	1.01 (0.98, 1.06)	1.03 (0.99, 1.08)	1.10 (1.06, 1.15)	1.03 (1.02, 1.04)	
With incident cancer or CVD	1.00	0.97 (0.93, 1.01)	0.99 (0.95, 1.04)	1.02 (0.98, 1.06)	1.05 (1.01, 1.10)	1.02 (1.01, 1.03)	0.67
CVD Medication[#]							
Without medication	1.00	1.02 (0.98, 1.06)	1.05 (1.01, 1.10)	1.07 (1.03, 1.11)	1.11 (1.06, 1.15)	1.03 (1.02, 1.04)	
With medication	1.00	0.98 (0.94, 1.02)	0.99 (0.95, 1.03)	1.02 (0.98, 1.07)	1.07 (1.02, 1.12)	1.03 (1.02, 1.04)	0.56
Follow-up time							
≤ 14 years	1.00	0.99 (0.93, 1.05)	0.97 (0.91, 1.03)	1.04 (0.98, 1.10)	1.12 (1.05, 1.19)	1.03 (1.02, 1.05)	
>14 years	1.00	0.99 (0.95, 1.02)	1.01 (0.97, 1.04)	1.02 (0.99, 1.06)	1.06 (1.03, 1.10)	1.03 (1.02, 1.04)	0.59
Calendar year							
≤ 2000	1.00	1.00 (0.96, 1.05)	1.03 (0.99, 1.08)	1.06 (1.01, 1.11)	1.10 (1.05, 1.15)	1.03 (1.02, 1.04)	
> 2000	1.00	0.97 (0.94, 1.01)	0.97 (0.94, 1.01)	1.00 (0.96, 1.04)	1.05 (1.01, 1.09)	1.02 (1.01, 1.04)	0.38
BMI							
Non-obese (<30 kg/m^2)	1.00	0.99 (0.96, 1.02)	1.00 (0.97, 1.03)	1.04 (1.01, 1.07)	1.08 (1.04, 1.12)	1.03 (1.02, 1.04)	
Obese (≥30 kg/m^2)	1.00	0.97 (0.90, 1.05)	0.96 (0.89, 1.04)	0.94 (0.87, 1.02)	1.04 (0.96, 1.14)	1.01 (0.99, 1.03)	0.03
Age							
≤ 70 years	1.00	1.00 (0.96, 1.06)	0.98 (0.93, 1.04)	1.03 (0.98, 1.09)	1.13 (1.07, 1.19)	1.03 (1.02, 1.05)	
>70 years	1.00	0.98 (0.95, 1.02)	1.01 (0.98, 1.05)	1.02 (0.99, 1.06)	1.06 (1.02, 1.10)	1.03 (1.02, 1.04)	0.48
Smoking status							
Never or past smokers	1.00	0.98 (0.95, 1.01)	0.99 (0.96, 1.02)	1.02 (0.99, 1.05)	1.06 (1.03, 1.10)	1.03 (1.02, 1.04)	
Current smokers	1.00	1.05 (0.97, 1.14)	1.07 (0.98, 1.16)	1.07 (0.98, 1.17)	1.16 (1.06, 1.26)	1.04 (1.02, 1.06)	0.42
Diet quality (AHEI)							
Low (below median value)	1.00	0.97 (0.93, 1.01)	0.96 (0.92, 1.01)	1.01 (0.97, 1.05)	1.08 (1.04, 1.13)	1.03 (1.02, 1.04)	
High (above median value)	1.00	1.00 (0.96, 1.04)	1.03 (0.99, 1.08)	1.04 (1.00, 1.08)	1.07 (1.02, 1.12)	1.03 (1.02, 1.04)	0.42
Physical activity							

Low (below median value)	1.00	0.98 (0.94, 1.01)	0.99 (0.95, 1.02)	1.02 (0.98, 1.05)	1.08 (1.04, 1.12)	1.03 (1.02, 1.04)	
High (above median value)	1.00	0.99 (0.94, 1.04)	1.00 (0.95, 1.05)	1.01 (0.96, 1.06)	1.03 (0.97, 1.08)	1.02 (1.00, 1.03)	0.32
Total fat intake							
Low (below median value)	1.00	0.98 (0.93, 1.02)	1.01 (0.96, 1.06)	1.01 (0.96, 1.06)	1.04 (0.98, 1.10)	1.02 (1.01, 1.04)	
High (above median value)	1.00	0.99 (0.93, 1.05)	1.02 (0.96, 1.08)	1.08 (1.01, 1.14)	1.11 (1.04, 1.18)	1.03 (1.02, 1.04)	0.32
Total calcium intake							
Low (below median value)	1.00	0.98 (0.94, 1.03)	1.02 (0.97, 1.07)	1.10 (1.05, 1.16)	1.13 (1.06, 1.21)	1.05 (1.03, 1.07)	
High (above median value)	1.00	0.99 (0.93, 1.05)	1.02 (0.96, 1.08)	1.02 (0.97, 1.09)	1.07 (1.00, 1.13)	1.02 (1.01, 1.04)	0.44
Total vitamin D intake							
Low (below median value)	1.00	1.00 (0.94, 1.05)	1.01 (0.95, 1.07)	1.06 (1.00, 1.12)	1.08 (1.01, 1.15)	1.02 (1.01, 1.04)	
High (above median value)	1.00	0.97 (0.92, 1.02)	1.01 (0.96, 1.06)	1.03 (0.98, 1.08)	1.06 (1.01, 1.12)	1.03 (1.01, 1.04)	0.20

#Medication included aspirin, anti-hypertensive medication, and cholesterol-lowering medication.

Multivariable-adjusted model was further adjusted for family history of cancer (yes, no), family history of cardiovascular disease (yes, no), baseline disease status (hypertension, hypercholesterolemia), baseline BMI (<20.9, 21.0–22.9, 23.0–24.9, 25.0–29.9, 30.0–34.9, ≥35.0 kg/m^2), physical activity (<3.0, 3.0–8.9, 9.0–17.9, 18.0–26.9, ≥27.0 MET-h/wk), overall dietary pattern (AHEI score, in quintiles), total energy intake (quintiles), smoking status (NHS and HPFS: never, former [1–4 cigarettes per day], former [5–14 cigarettes per day], former [15–24 cigarettes per day], former [25–34 cigarettes per day], former [35–44 cigarettes per day], former [45 or more cigarettes per day], former [unknown cigarettes per day], current [1–4 cigarettes per day], current [5–14 cigarettes per day], current [15–24 cigarettes per day], current [25–34 cigarettes per day], current [35–44 cigarettes per day], current [45 or more cigarettes per day], current [unknown cigarettes per day]), alcohol consumption (0, 0‒5, 5‒10, 10‒15, ≥15g/d), postmenopausal status (yes vs no, women only) and current postmenopausal hormone use (yes vs no, women only).