2,780 participants in the Strong Heart Family Study

Excluded:

527 participants with diabetes at baseline

14 participants with kidney failure at baseline

64 participants with history of myocardial infarction

22 participants with history of stroke

12 participants with history of heart failure

3 participants pregnant at baseline

128 did not complete food frequency questionnaire

31 skipped more than 15 (of 119) questions on food frequency questionnaire

111 reported extreme caloric intake on food frequency questionnaire

245 no follow-up

1,623 participants included in analysis

Supplemental Figure 1. Study Participant Flow Chart

Supplemental Table 1. Hazard Ratios (95% CIs) for associations of full-fat and low-fat dairy food intake (servings/1000kcal) with incident diabetes among participants in the Strong Heart Family Study (stratified by BMI)[1]

	Tertile 1	Tertile 2	Tertile 3	*P*-trend
Full-fat dairy food intake (servings/1000 kcal) [2]				
BMI (<30 kg/m²)				
No. of cases	24	22	23	
Total no. at risk	269	272	298	
Minimally adjusted[3]	1.0	0.94 (0.50, 1.79)[4]	0.90 (0.47, 1.69)	0.74
Multivariate[5]	1.0	0.96 (0.50, 1.82)	0.90 (0.48, 1.71)	0.75
BMI[6]	1.0	0.96 (0.50, 1.82)	0.90 (0.48, 1.71)	0.75
BMI (≥30 kg/m²)				
No. of cases	79	71	58	
Total no. at risk	272	269	243	
Minimally adjusted[3]	1.0	0.86 (0.58, 1.27)	0.79 (0.58, 1.07)	0.13
Multivariate[5]	1.0	0.86 (0.57, 1.29)	0.79 (0.58, 1.07)	0.14
BMI[6]	1.0	0.86 (0.57, 1.29)	0.79 (0.58, 1.07)	0.14
Low-fat dairy food intake (servings/1000 kcal)[7]				
BMI (<30 kg/m²)				
No. of cases	33	12	24	
Total no. at risk	363	197	279	
Minimally adjusted[3]	1.0	0.67 (0.36, 1.22)	1.02 (0.62, 1.66)	0.96
Multivariate[5]	1.0	0.65 (0.35, 1.22)	0.96 (0.58, 1.57)	0.77
BMI[6]	1.0	0.65 (0.35, 1.22)	0.96 (0.58, 1.57)	0.77
BMI (≥30 kg/m²)				
No. of cases	72	66	70	
Total no. at risk	283	239	262	
Minimally adjusted[3]	1.0	1.07 (0.77, 1.48)	1.04 (0.77, 1.41)	0.80
Multivariate[8]	1.0	1.08 (0.77, 1.51)	1.06 (0.78, 1.42)	0.72

Supplementary Data

BMI[6]	1.0	1.08 (0.77, 1.51)	1.06 (0.78, 1.42)	0.72

[1] BMI, body mass index; CI, confidence interval; IQR, inter-quartile range; kcal, kilocalorie

[2] Full-fat dairy food group consisted of whole milk, and cheese and cheese spreads with one serving equal to 250 mL (8 ounces) of milk or 42.5 g (1.5 ounces) of cheese or cheese spread

[3] Adjusted for age, sex, site, and total caloric intake

[4] Hazard ratios (95% CI) (all such values)

[5] Additionally adjusted for education, physical activity, smoking status, diet quality (alternative healthy eating index), low-fat dairy food intake

[6] Additionally adjusted for body mass index

[7] Low-fat dairy food group consisted of 2% milk, 1% milk, non-fat milk, and low-fat cheese and cheese spreads with one serving equal to 250 mL (8 ounces) of milk or 42.5 g (1.5 ounces) of cheese or cheese spread

[8] Additionally adjusted for education, physical activity, smoking status, diet quality (alternative healthy eating index), full-fat dairy food intake

Supplemental Table 2. Hazard Ratios (95% CIs) for associations of full-fat and low-fat dairy food intake (servings/1000kcal) with incident diabetes among participants in the Strong Heart Family Study (stratified by sex)[1]

	Tertile 1	Tertile 2	Tertile 3	*P*-trend
Full-fat dairy food intake (servings/1000 kcal) [2]				
Females				
No. of cases	71	55	49	
Total no. at risk	344	331	311	
Minimally adjusted[3]	1.0	0.78 (0.53, 1.13)[4]	0.78 (0.53, 1.16)	0.21
Multivariate[5]	1.0	0.77 (0.53, 1.14)	0.79 (0.53, 1.17)	0.22
BMI[6]	1.0	0.77 (0.52, 1.13)	0.79 (0.52, 1.21)	0.26
Males				
No. of cases	32	38	32	
Total no. at risk	197	210	230	
Minimally adjusted[3]	1.0	1.09 (0.67, 1.78)	0.80 (0.53, 1.21)	0.27
Multivariate[5]	1.0	1.09 (0.67, 1.77)	0.80 (0.53, 1.21)	0.26
BMI[6]	1.0	1.20 (0.71, 2.02)	0.98 (0.62, 1.56)	0.94
Low-fat dairy food intake (servings/1000 kcal)[7]				
Females				
No. of cases	67	53	55	
Total no. at risk	373	286	327	
Minimally adjusted[3]	1.0	0.99 (0.69, 1.41)	0.91 (0.66, 1.26)	0.58
Multivariate[5]	1.0	0.95 (0.65, 1.38)	0.93 (0.67, 1.29)	0.64
BMI[6]	1.0	0.79 (0.55, 1.14)	0.80 (0.57, 1.11)	0.18
Males				
No. of cases	38	25	39	
Total no. at risk	273	150	214	
Minimally adjusted[3]	1.0	1.27 (0.72, 2.25)	1.45 (0.87, 2.44)	0.15
Multivariate[8]	1.0	1.29 (0.70, 2.37)	1.47 (0.87, 2.48)	0.15

Supplementary Data

BMI[6]	1.0	1.22 (0.71, 2.08)	1.27 (0.75, 2.17)	0.37

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[1] BMI, body mass index; CI, confidence interval; IQR, inter-quartile range; kcal, kilocalorie

[2] Full-fat dairy food group consisted of whole milk, and cheese and cheese spreads with one serving equal to 250 mL (8 ounces) of milk or 42.5 g (1.5 ounces) of cheese or cheese spread

[3] Adjusted for age, site, and total caloric intake

[4] Hazard ratios (95% CI) (all such values)

[5] Additionally adjusted for education, physical activity, smoking status, diet quality (alternative healthy eating index), low-fat dairy food intake

[6] Additionally adjusted for body mass index

[7] Low-fat dairy food group consisted of 2% milk, 1% milk, non-fat milk, and low-fat cheese and cheese spreads with one serving equal to 250 mL (8 ounces) of milk or 42.5 g (1.5 ounces) of cheese or cheese spread

[8] Additionally adjusted for education, physical activity, smoking status, diet quality (alternative healthy eating index), full-fat dairy food intake

Supplemental Table 3. Hazard Ratios (95% CIs) for associations of full-fat and low-fat dairy food intake (servings/1000kcal) with incident diabetes among participants in the Strong Heart Family Study (stratified by median age)[1]

	Tertile 1	Tertile 2	Tertile 3	*P*-trend
Full-fat dairy food intake (servings/1000 kcal) [2]				
<36 years old				
No. of cases	42	41	34	
Total no. at risk	241	286	291	
Minimally adjusted[3]	1.0	0.80 (0.52, 1.25)[4]	0.72 (0.48, 1.09)	0.12
Multivariate[5]	1.0	0.76 (0.48, 1.22)	0.70 (0.47, 1.05)	0.09
BMI[6]	1.0	0.72 (0.46, 1.11)	0.71 (0.47, 1.08)	0.11
≥ 36 years old				
No. of cases	61	52	47	
Total no. at risk	300	255	250	
Minimally adjusted[3]	1.0	0.91 (0.60, 1.39)	0.85 (0.60, 1.22)	0.38
Multivariate[5]	1.0	0.91 (0.60, 1.38)	0.85 (0.59, 1.20)	0.35
BMI[6]	1.0	1.00 (0.65, 1.54)	0.89 (0.62, 1.30)	0.57
Low-fat dairy food intake (servings/1000 kcal)[7]				
<36 years old				
No. of cases	42	39	36	
Total no. at risk	328	215	275	
Minimally adjusted[3]	1.0	1.10 (0.69, 1.74)	0.82 (0.54, 1.23)	0.33
Multivariate[5]	1.0	1.08 (0.68, 1.73)	0.87 (0.56, 1.36)	0.54
BMI[6]	1.0	0.92 (0.54. 1.57)	0.82 (0.51, 1.33)	0.42
≥ 36 years old				
No. of cases	63	39	58	
Total no. at risk	318	221	266	
Minimally adjusted[3]	1.0	0.96 (0.68, 1.37)	1.26 (0.83, 1.90)	0.30
Multivariate[8]	1.0	0.97 (0.67, 1.41)	1.26 (0.82, 1.93)	0.30

Supplementary Data

BMI[6]	1.0	0.85 (0.58, 1.23)	1.06 (0.68, 1.66)	0.79

[1] BMI, body mass index; CI, confidence interval; IQR, inter-quartile range; kcal, kilocalorie

[2] Full-fat dairy food group consisted of whole milk, and cheese and cheese spreads with one serving equal to 250 mL (8 ounces) of milk or 42.5 g (1.5 ounces) of cheese or cheese spread

[3] Adjusted for age, sex, site, and total caloric intake

[4] Hazard ratios (95% CI) (all such values)

[5] Additionally adjusted for education, physical activity, smoking status, diet quality (alternative healthy eating index), low-fat dairy food intake

[6] Additionally adjusted for body mass index

[7] Low-fat dairy food group consisted of 2% milk, 1% milk, non-fat milk, and low-fat cheese and cheese spreads with one serving equal to 250 mL (8 ounces) of milk or 42.5 g (1.5 ounces) of cheese or cheese spread

[8] Additionally adjusted for education, physical activity, smoking status, diet quality (alternative healthy eating index), full-fat dairy food intake

Supplemental Table 4. Hazard Ratios (95% CIs) for associations of reported intake of full-fat milk, low- and non-fat milk, and full-fat cheese and cheese spreads with incident diabetes among participants in the Strong Heart Family Study[1]

	Quantile 1[2]	Quantile 2[2]	Quantile 3[2]	P-trend
Full-Fat Milk (servings/1000kcal)[3]	0	0.01-2.19	____	
Median intake (IQR)	0 (0, 0)	0.15 (0.05, 0.37)	____	
No. of cases	195	82	____	
Total no. at risk	1093	530	____	
Minimally adjusted[4]	1.0	0.90 (0.66, 1.23)[5]	____	0.50
Multivariate[6]	1.0	0.91 (0.67, 1.23)	____	0.53
BMI[7]	1.0	1.03 (0.76, 1.40)	____	0.84
Low- and Non-fat Milk (servings/1000kcal)[3]	0	0.01-0.11	0.12-4.55	
Median intake (IQR)	0 (0,0)	0.04 (0.02, 0.07)	0.39 (0.22. 0.69)	
No. of cases	110	73	94	
Total no. at risk	672	410	541	
Minimally adjusted[4]	1.0	1.00 (0.74, 1.36)	1.02 (0.75, 1.37)	0.71
Multivariate[8]	1.0	0.99 (0.73, 1.36)	1.05 (0.77. 1.42)	0.54
BMI[7]	1.0	0.88 (0.64, 1.21)	0.88 (0.64, 1.22)	0.80
Full-Fat Cheese and Cheese Spreads (servings/1000kcal)[3]	0-0.03	>0.03-0.11	>0.11-1.17	
Median intake (IQR)	0.01 (0, 0.02)	0.07 (0.05, 0.08)	0.19 (0.14, 0.28)	
No. of cases	107	87	83	
Total no. at risk	541	541	541	
Minimally adjusted[4]	1.0	0.83 (0.61, 1.11)	0.82 (0.59, 1.14)	0.37
Multivariate[9]	1.0	0.83 (0.61, 1.11)	0.82 (0.59, 1.14)	0.37
BMI[7]	1.0	0.75 (0.57, 0.99)	0.78 (0.56, 1.0)	0.25

[1] BMI, body mass index; CI, confidence interval; IQR, inter-quartile range; kcal, kilocalorie
[2] Low-fat and non-fat milk categorized as tertiles. Due to few consumers of full-fat milk, full-fat milk was categorized dichotomously
[3] One serving equal to 250 mL (8 ounces) of milk or 42.5 g (1.5 ounces) of cheese or cheese spread
[4] Adjusted for age, sex, site, and total caloric intake

Supplementary Data

[5] Hazard ratios (95% CI) (all such values)
[6] Additionally adjusted for education, physical activity, smoking status, diet quality (alternative healthy eating index), and intake of low- and non-fat milk and full-fat cheese and cheese spreads
[7] Additionally adjusted for body mass index
[8] Additionally adjusted for education, physical activity, smoking status, diet quality (alternative healthy eating index), and intake of full-fat milk and cheese and cheese spreads
[9] Additionally adjusted for education, physical activity, smoking status, diet quality (alternative healthy eating index), and intake of full-fat milk and low- and non-fat milk

Supplemental Table 5. Hazard Ratios (95% CIs) for associations of full-fat or low-fat dairy food intake with incident diabetes among participants in the Strong Heart Family Study (follow-up truncated post-2007-2009 examination)[1]

	Tertile 1	Tertile 2	Tertile 3	*P*-trend
Full-fat dairy food intake (servings/1000 kcal) [2]	<0.05	0.05 to <0.18	≥0.18	
Median intake (IQR)	0.02 (0.00,0.03)	0.11 (0.08,0.14)	0.34 (0.25,0.51)	
No. of cases	65	54	53	
Total no. at risk	541	541	541	
Minimally adjusted[3]	1.0	0.83 (0.54, 1.29)[4]	0.82 (0.57, 1.19)	0.30
Multivariate[5]	1.0	0.85 (0.55, 1.30)	0.86 (0.59, 1.25)	0.41
BMI[6]	1.0	0.87 (0.56, 1.36)	0.92 (0.60, 1.42)	0.71
Low-fat dairy food intake (servings/1000 kcal)[7]	0	0 to <0.13	≥0.13	
Median intake (IQR)	0 (0,0)	0.04 (0.02,0.08)	0.40 (0.24,0.70)	
No. of cases	61	48	63	
Total no. at risk	646	436	541	
Minimally adjusted[3]	1.0	1.18 (0.80, 1.73)	1.32 (0.93, 1.89)	0.12
Multivariate[8]	1.0	1.15 (0.75, 1.77)	1.32 (0.89, 1.96)	0.16
BMI[6]	1.0	0.94 (0.62, 1.44)	1.11 (0.73, 1.69)	0.59

[1] BMI, body mass index; CI, confidence interval; IQR, inter-quartile range; kcal, kilocalorie
[2] Full-fat dairy food group consisted of whole milk, and cheese and cheese spreads with one serving equal to 250 mL (8 ounces) of milk or 42.5 g (1.5 ounces) of cheese or cheese spread
[3] Adjusted for age, sex, site, and total caloric intake
[4] Hazard ratios (95% CI) (all such values)
[5] Additionally adjusted for education, physical activity, smoking status, diet quality (alternative healthy eating index), low-fat dairy food intake
[6] Additionally adjusted for body mass index
[7] Low-fat dairy food group consisted of 2% milk, 1% milk, non-fat milk, and low-fat cheese and cheese spreads with one serving equal to 250 mL (8 ounces) of milk or 42.5 g (1.5 ounces) of cheese or cheese spread
[8] Additionally adjusted for education, physical activity, smoking status, diet quality (alternative healthy eating index), full-fat dairy food intake

Supplemental Table 6. Hazard Ratios (95% CIs) for associations of full-fat dairy food intake (including cream, ice cream, and butter in the classification of full-fat dairy foods) with incident diabetes among participants in the Strong Heart Family Study[1]

	Tertile 1	Tertile 2	Tertile 3	*P*-trend
Full-fat dairy food intake (servings/1000 kcal) [2]	<0.17	0.17-<0.40	≥0.40	
Median intake (IQR)	0.09 (0.05, 0.12)	0.27 (0.21, 0.32)	0.62 (0.50, 0.94)	
No. of cases	103	93	81	
Total no. at risk	541	541	541	
Minimally adjusted[3]	1.0	0.89 (0.63, 1.25)[4]	0.80 (0.53, 1.20)	0.07
Multivariate[5]	1.0	0.88 (0.63, 1.24)	0.79 (0.53, 1.17)	0.03
BMI[6]	1.0	0.90 (0.64, 1.27)	0.81 (0.53, 1.25)	0.08

[1] BMI, body mass index; CI, confidence interval; IQR, inter-quartile range; kcal, kilocalorie
[2] Full-fat dairy food group consisted of whole milk, cheese and cheese spreads, cream, ice cream, and butter with one serving equal to 250 mL (8 ounces) of milk, 42.5 g (1.5 ounces) of cheese or cheese spread, 15 grams (1 tablespoon) cream or butter, and 107 grams (4 ounces) ice cream
[3] Adjusted for age, sex, site, and total caloric intake
[4] Hazard ratios (95% CI) (all such values)
[5] Additionally adjusted for education, physical activity, smoking status, diet quality (alternative healthy eating index), low-fat dairy food intake
[6] Additionally adjusted for body mass index