Table 1. Baseline characteristics of 100,314 California Teachers Study participants according to sugar-sweetened beverage[a] consumption in semiquantitative frequency categories.

Characteristic[b]***	Rare or never	>rare or never to <1 serving per week	≥1 serving per week to <1 serving per day	≥1 serving per day	Total
No. of participants		N			
	40,579	33,773	21,665	4,297	100,314
Dietary Intake		Mean ± SEM[c]			
Energy, kcal/day	1,756.6 ± 3.4	1,957.5 ± 3.7	2,047.7 ± 4.6	2,248.5 ± 10.3	1,908.2 ± 2.2
Fruit and vegetable, g/day	359.6 ± 0.9	299.9 ± 0.9	285.1 ± 1.2	265.4 ± 2.7	319.4 ± 0.6
Vegetables, g/day	183.9 ± 0.5	163.4 ± 0.6	163.3 ± 0.7	166.9 ± 1.7	171.8 ± 0.4
Red meat, g/day	29.1 ± 0.2	34.7 ± 0.2	36.3 ± 0.2	36.8 ± 0.5	32.9 ± 0.1
Processed meat intake, g/day	6.3 ± 0.1	8.2 ± 0.1	8.4 ± 0.1	8.7 ± 0.2	7.5 ± 0.0
Fish	20.4 ± 0.1	19.4 ± 0.1	20.1 ± 0.1	20.3 ± 0.4	20.0 ± 0.1
Refined carbs	240.7 ± 0.7	270.7 ± 0.8	275.7 ± 1.0	278.1 ± 2.3	260.0 ± 0.5
Dietary fiber	20.3 ± 0.0	20.4 ± 0.1	20.2 ± 0.1	20.2 ± 0.1	20.3 ± 0.0
Coffee and tea	150.1 ± 0.7	134.4 ± 0.7	133.4 ± 0.9	134.5 ± 2.1	140.5 ± 0.4
		Mean ± SEM[c]			
SSB[d] intake, fl oz/day	0 ± 0.0	2.6 ± 0.0	5.5 ± 0.0	13.6 ± 0.1	2.7 ± 0.0
Age, years	55.3 ± 0.1	48.9 ± 0.1	48.8 ± 0.1	48.6 ± 0.2	51.5 ± 0.0
MVPA[e], minutes/week	240.4 ± 1.2	215.4 ± 1.4	221.7 ± 1.7	222.2 ± 3.8	227.1 ± 0.8
Race/ethnicity		N (%)			
White	36,568 (90.1)	28,531 (84.5)	18,471 (85.3)	3,774 (87.8)	87,344 (87.1)
Asian/Pacific Islander	1,092 (2.7)	1,518 (4.5)	815 (3.8)	115 (2.7)	3,540 (3.5)
African-American	663 (1.6)	1,077 (3.2)	663 (3.1)	117 (2.7)	2,520 (2.5)
Hispanic/Latino	1,248 (3.1)	1,720 (5.1)	1,083 (5.0)	180 (4.2)	4,231 (4.2)
Native American	296 (0.7)	239 (0.7)	148 (0.7)	25 (0.6)	708 (0.7)
Other/Mixed	410 (1.0)	447 (1.3)	297 (1.4)	56 (1.3)	1,210 (1.2)
Unknown	302 (0.7)	241 (0.7)	188 (0.9)	30 (0.7)	761 (0.8)
Education[f]					
Academic/Professional doctorate	1,062 (2.6)	761 (2.3)	515 (2.4)	125 (2.9)	2,463 (2.5)
Master's degree	10,640 (26.2)	9,203 (27.3)	5,801 (26.8)	1,182 (27.5)	26,826 (26.7)
Bachelor's degree	9,167 (22.6)	7,906 (23.4)	4,612 (21.3)	874 (20.3)	22,559 (22.5)
Associate's degree or less	134 (0.3)	138 (0.4)	103 (0.5)	19 (0.4)	394 (0.4)
Unknown	19,576 (48.2)	15,765 (46.7)	10,634 (49.1)	2,097 (48.8)	48,072 (47.9)
Occupation					
Teacher, any kind	20,236 (49.9)	20,965 (62.1)	13,715 (63.3)	2,802 (65.2)	57,718 (57.5)
Pupil services	1,102 (2.7)	1,082 (3.2)	679 (3.1)	132 (3.1)	2,995 (3.0)
Administration	1,267 (3.1)	1,195 (3.5)	850 (3.9)	191 (4.4)	3,503 (3.5)
Any other combination	565 (1.4)	593 (1.8)	370 (1.7)	71 (1.7)	1,599 (1.6)
Unknown	17,409 (42.9)	9,938 (29.4)	6,051 (27.9)	1,101 (25.6)	34,499 (34.4)
Socioeconomic status					
1st quartile, low	1,422 (3.5)	1,421 (4.2)	914 (4.2)	168 (3.9)	3,925 (3.9)
2nd quartile, low-medium	6,124 (15.1)	5,628 (16.7)	3,671 (16.9)	684 (15.9)	16,107 (16.1)
3rd quartile, medium-high	12,044 (29.7)	10,736 (31.8)	6,639 (30.6)	1,366 (31.8)	30,785 (30.7)
4th quartile, high	17,791 (43.8)	13,905 (41.2)	9,107 (42.0)	1,814 (42.2)	42,617 (42.5)
Unknown	3,198 (7.9)	2,083 (6.2)	1,334 (6.2)	265 (6.2)	6,880 (6.9)
Marital status					
Married	18,668 (46.0)	16,701 (49.5)	10,234 (47.2)	1,995 (46.4)	47,598 (47.5)

Separated/Divorced	3,815 (9.4)	3,017 (8.9)	1,830 (8.5)	406 (9.5)	9,068 (9.0)
Widowed	3,327 (8.2)	1,579 (4.7)	1,011 (4.7)	182 (4.2)	6,099 (6.1)
All other	14,769 (36.4)	12,476 (36.9)	8,590 (39.7)	1,714 (39.9)	37,549 (37.4)
Smoking, current	2,047 (5.0)	1,487 (4.4)	1,123 (5.2)	329 (7.7)	4,986 (5.0)
Alcohol consumption, ≥20 g/day	4,045 (10.0)	2,411 (7.1)	1,638 (7.8)	326 (7.8)	8,420 (8.4)
	Mean ± SEM[b]				
BMI, kg/m^2	24.7 ± 0.0	24.6 ± 0.0	24.9 ± 0.0	25.5 ± 0.1	24.7 ± 0.0
	N (%)				
Obese, BMI[g] ≥30 kg/m^2	5,013 (12.4)	4,146 (12.3)	2,992 (13.8)	752 (17.5)	12,903 (12.9)
Hypertension	7,042 (17.4)	4,134 (12.2)	2,885 (13.3)	616 (14.3)	14,677 (14.6)
Daily aspirin use	3,268 (8.1)	1,691 (5.0)	1,135 (5.2)	268 (6.2)	6,362 (6.3)
Daily antihypertensive medication use	6,444 (15.9)	3,562 (10.6)	2,504 (11.6)	547 (12.7)	13,057 (13.0)
Daily multivitamin use	16,244 (40.0)	10,777 (31.9)	7,035 (32.5)	1,495 (34.8)	35,551 (35.4)
Diabetes family history[h]	8,448 (20.8)	6,463 (19.1)	4,213 (19.5)	844 (19.6)	19,968 (19.9)
Cardiovascular disease family history[i]	20,804 (51.3)	14,991 (44.4)	9,726 (44.9)	1,970 (45.9)	47,491 (47.3)
Cancer family history[j]	22,060 (54.4)	17,511 (51.9)	11,246 (51.9)	2,283 (53.1)	53,095 (52.9)
Menopausal status and HT[k] use					
Premenopausal	13,120 (32.3)	17,120 (50.7)	10,843 (50.1)	2,129 (49.6)	43,212 (43.1)
Peri- or postmenopausal, no HT use	5,474 (13.5)	2,933 (8.7)	1,922 (8.9)	361 (8.4)	10,690 (10.7)
Peri- or postmenopausal, past HT use	3,185 (7.9)	1,625 (4.8)	1,080 (5.0)	209 (4.9)	6,099 (6.1)
Peri- or postmenopausal, current HT use, Estrogen	6,254 (15.4)	3,633 (10.8)	2,296 (10.6)	477 (11.1)	12,660 (12.6)
Peri- or postmenopausal, current HT use, Estrogen & Progesterone	7,161 (17.7)	4,428 (13.1)	2,780 (12.8)	520 (12.1)	14,889 (14.8)
Peri- or postmenopausal, all other HT combinations	5,385 (13.3)	4,034 (11.9)	2,744 (12.7)	601 (14.0)	12,764 (12.7)
Oral contraception use, past and current	24,578 (60.6)	24,049 (71.2)	15,567 (71.9)	3,130 (72.8)	67,324 (67.1)

[a]1 serving of caloric soft drink is 12 fluid ounces, 1 serving of sweetened bottled water/tea or fruit drink is 8 fluid ounces.

[b]χ^2 tests were used for each variable to examine differences across categories. All variables have a p-value of <0.0001.

[c]SEM=standard error of the mean.

[d]SSB=sugar-sweetened beverage.

[e]MVPA=moderate-vigorous physical activity.

[f]Education was obtained after baseline, during fourth mail-in questionnaire follow-up (2005-2008).

[g]BMI=body mass index.

[h]Diabetes family history of first-degree relatives (parent, sibling, offspring).

[i]Cardiovascular disease family history includes heart attack/myocardial infarction and stroke family history of first-degree relatives (parent, sibling, offspring).

[j]Cancer family history of first-degree relatives (parent, sibling, offspring).

[k]HT=hormone therapy.

***All variables have a p-value of <0.0001.

Table 2. Mortality risk[a] in California Teachers Study participants (n=100,314) according to sugar-sweetened beverage[b] consumption in semiquantitative frequency categories.

Mortality	Rare/ never	>rare/never to <1 serving per week	≥1 serving per week to <1 serving per day	≥1 serving per day	P trend
All-cause					
No. of deaths	7,838	3,569	2,301	435	
Rate per 1,000 person-years	10.4	5.5	5.5	5.3	
Age-adjusted HR[c] (95% CI[d])	1.0	0.97 (0.93, 1.01)	1.02 (0.98, 1.07)	1.17 (1.06, 1.28)	0.04
Multivariable-adjusted HR (95% CI)					
Model 1[e]	1.0	1.00 (0.96, 1.04)	1.02 (0.97, 1.07)	1.07 (0.97, 1.17)	0.17
Model 2[f,g]	1.0	0.98 (0.94, 1.02)	0.98 (0.93, 1.03)	1.03 (0.93, 1.15)	0.94
Cardiovascular disease-specific					
No. of deaths	2,513	1,042	641	117	
Rate per 1,000 person-years	3.3	1.6	1.5	1.4	
Age-adjusted HR (95% CI)	1.0	0.99 (0.92, 1.07)	1.02 (0.93, 1.11)	1.22 (1.02, 1.47)	0.09
Multivariable-adjusted HR (95% CI)					
Model 1	1.0	1.01 (0.93, 1.08)	1.00 (0.92, 1.09)	1.08 (0.90, 1.30)	0.55
Model 2	1.0	0.98 (0.91, 1.06)	0.94 (0.86, 1.03)	1.00 (0.81, 1.22)	0.44
Cancer-specific					
No. of deaths	2,097	1,137	741	152	
Rate per 1,000 person-years	2.8	1.8	1.8	1.8	
Age-adjusted HR (95% CI)	1.0	0.96 (0.89, 1.03)	1.00 (0.92, 1.08)	1.11 (0.94, 1.31)	0.31
Multivariable-adjusted HR (95% CI)					
Model 1	1.0	1.00 (0.93, 1.08)	1.01 (0.93, 1.10)	1.05 (0.89, 1.24)	0.58
Model 2	1.0	1.00 (0.93, 1.08)	0.98 (0.89, 1.07)	1.03 (0.87, 1.23)	0.99
Other-cause					
No. of deaths	3,228	1,390	919	166	
Rate per 1,000 person-years	4.3	2.1	2.2	2.0	
Age-adjusted HR (95% CI)	1.0	0.96 (0.90, 1.02)	1.04 (0.97, 1.12)	1.18 (1.01, 1.38)	0.03
Multivariable-adjusted HR (95% CI)					
Model 1	1.0	0.98 (0.92, 1.04)	1.03 (0.96, 1.11)	1.07 (0.91, 1.25)	0.26
Model 2	1.0	0.94 (0.88, 1.01)	0.98 (0.91, 1.06)	1.00 (0.84, 1.18)	0.83

[a]Total person-time: 1,897,745 years.

[b]1 serving of caloric soft drink is 12 fluid ounces, 1 serving of sweetened bottled water/tea or fruit drink is 8 fluid ounces.

[c]HR=hazard ratio

[d]CI=confidence interval.

[e]Model 1 adjusted for: age, race/ethnicity, socioeconomic status, marital status, smoking, alcohol intake, cardiovascular disease family history, cancer family history, diabetes family history, history of hypertension, physical activity, aspirin use, multivitamin use, use of at least one anti-hypertensive medication, menopausal status, menopausal hormone therapy use, and oral contraceptive use.

[f]Model 2 adjusted for: age, race/ethnicity, socioeconomic status, marital status, smoking, alcohol intake, history of hypertension, physical activity, aspirin use, multivitamin use, use of at least one anti-hypertensive medication, menopausal status, menopausal hormone therapy use, oral contraceptive use, body mass index, total energy intake, and intakes of fruit and vegetable, red meat, processed meat, fish, refined carbohydrates, dietary fiber, and coffee/tea beverages.

[g]Intakes of dietary variables are adjusted for energy intake (residual method) in Model 2 in addition to having total energy adjustment.

Table 3. Comprehensive mortality risk[a] in California Teachers Study participants (n=100,314) according to sugar-sweetened beverage[b] consumption in semiquantitative frequency categories.

Mortality	Rare/ never	>rare/never to <1 serving per week	≥1 serving per week to <1 serving per day	≥1 serving per day	P trend
			Sugar-Sweetened Beverage Consumption		
All-cause					
No. of deaths	7,838	3,569	2,301	435	
Rate per 1,000 person-years	10.4	5.5	5.5	5.3	
Age-adjusted HR[c] (95% CI[d])	1.0	0.97 (0.93, 1.01)	1.02 (0.98, 1.07)	1.17 (1.06, 1.28)	0.04
Multivariable-adjusted HR (95% CI)					
Model 1[e]	1.0	1.00 (0.96, 1.04)	1.02 (0.97, 1.07)	1.07 (0.97, 1.17)	0.17
Model 2[f,g]	1.0	0.98 (0.94, 1.02)	0.98 (0.93, 1.03)	1.03 (0.93, 1.15)	0.94
Model 3[h]	1.0	1.00 (0.96, 1.04)	1.01 (0.96, 1.06)	1.08 (0.97, 1.19)	0.19
Model 4[i,j]	1.0	0.97 (0.94, 1.02)	0.97 (0.93, 1.03)	1.03 (0.93, 1.14)	0.97
Cardiovascular disease-specific					
No. of deaths	2,513	1,042	641	117	
Rate per 1,000 person-years	3.3	1.6	1.5	1.4	
Age-adjusted HR (95% CI)	1.0	0.99 (0.92, 1.07)	1.02 (0.93, 1.11)	1.22 (1.02, 1.47)	0.09
Multivariable-adjusted HR (95% CI)					
Model 1	1.0	1.01 (0.93, 1.08)	1.00 (0.92, 1.09)	1.08 (0.90, 1.30)	0.55
Model 2	1.0	0.98 (0.91, 1.06)	0.94 (0.86, 1.03)	1.00 (0.81, 1.22)	0.44
Model 3	1.0	1.01 (0.94, 1.09)	0.99 (0.90, 1.08)	1.07 (0.88, 1.30)	0.76
Model 4	1.0	0.99 (0.92, 1.07)	0.96 (0.87, 1.05)	1.03 (0.84, 1.26)	0.73
Cancer-specific					
No. of deaths	2,097	1,137	741	152	
Rate per 1,000 person-years	2.8	1.8	1.8	1.8	
Age-adjusted HR (95% CI)	1.0	0.96 (0.89, 1.03)	1.00 (0.92, 1.08)	1.11 (0.94, 1.31)	0.31
Multivariable-adjusted HR (95% CI)					
Model 1	1.0	1.00 (0.93, 1.08)	1.01 (0.93, 1.10)	1.05 (0.89, 1.24)	0.58
Model 2	1.0	1.00 (0.93, 1.08)	0.98 (0.89, 1.07)	1.03 (0.87, 1.23)	0.99
Model 3	1.0	1.01 (0.94, 1.09)	0.99 (0.91, 1.08)	1.07 (0.90, 1.26)	0.64
Model 4	1.0	1.00 (0.93, 1.08)	0.98 (0.89, 1.07)	1.03 (0.87, 1.22)	0.96
Other-cause					
No. of deaths	3,228	1,390	919	166	
Rate per 1,000 person-years	4.3	2.1	2.2	2.0	
Age-adjusted HR (95% CI)	1.0	0.96 (0.90, 1.02)	1.04 (0.97, 1.12)	1.18 (1.01, 1.38)	0.03
Multivariable-adjusted HR (95% CI)					
Model 1	1.0	0.98 (0.92, 1.04)	1.03 (0.96, 1.11)	1.07 (0.91, 1.25)	0.26
Model 2	1.0	0.94 (0.88, 1.01)	0.98 (0.91, 1.06)	1.00 (0.84, 1.18)	0.83
Model 3	1.0	0.98 (0.91, 1.04)	1.04 (0.96, 1.12)	1.09 (0.93, 1.28)	0.17
Model 4	1.0	0.95 (0.89, 1.02)	1.00 (0.92, 1.08)	1.03 (0.87, 1.21)	0.82

[a]Total person-time: 1,897,745 years.
[b]1 serving of caloric soft drink is 12 fluid ounces, 1 serving of sweetened bottled water/tea or fruit drink is 8 fluid ounces.
[c]HR=hazard ratio
[d]CI=confidence interval.
[e]Model 1 adjusted for: age, race/ethnicity, socioeconomic status, marital status, smoking, alcohol intake, cardiovascular disease family history, cancer family history, diabetes family history, history of hypertension, physical activity, aspirin use, multivitamin use, use of at least one anti-hypertensive medication, menopausal status, menopausal hormone therapy use, and oral contraceptive use.

[f]Model 2 adjusted for: age, race/ethnicity, socioeconomic status, marital status, smoking, alcohol intake, history of hypertension, physical activity, aspirin use, multivitamin use, use of at least one anti-hypertensive medication, menopausal status, menopausal hormone therapy use, oral contraceptive use, body mass index, total energy intake, and intakes of fruit and vegetable, red meat, processed meat, fish, refined carbohydrates, dietary fiber, and coffee/tea beverages.

[g]Intakes of dietary variables are adjusted for energy intake (residual method) in Model 2 in addition to having total energy adjustment.

[h]Model 3 adjusted for: variables in Model 1 and body mass index. This model assesses the impact of body mass index adjustment.

[i]Model 4 adjusted for: variables in Model 2 with the exception of total energy intake. This model assesses the impact of over-adjustment by total energy intake.

[j]Intakes of dietary variables are adjusted for energy intake (residual method) in Model 4.

Table 4. Mortality risk[a] in California Teachers Study participants (n=100,314) according to type of sugar-sweetened beverage[b] consumption in semiquantitative frequency categories.

Mortality	Sugar-Sweetened Beverage Consumption[c]				
	Rare/ never	>rare/never to <1 serving per week	≥1 serving per week to <1 serving per day	≥1 serving per day	P trend
All-Cause					
	Sweetened bottled waters/teas				
No. of deaths	10,394	1,759	1,598	392	
Rate per 1,000 person-years	54.8	9.3	8.4	2.1	
Age-adjusted HR[d] (95% CI[e])	1.0	0.95 (0.91, 1.01)	0.97 (0.92, 1.02)	1.05 (0.95, 1.16)	0.82
Multivariable-adjusted HR (95% CI)					
Model 1[f]	1.0	0.98 (0.93, 1.03)	0.98 (0.93, 1.03)	0.98 (0.89, 1.09)	0.48
Model 2[g,h]	1.0	0.98 (0.92, 1.03)	0.97 (0.91, 1.02)	0.96 (0.86, 1.06)	0.22
Model 3[i]	1.0	0.98 (0.93, 1.03)	0.98 (0.93, 1.04)	0.99 (0.89, 1.10)	0.61
Model 4[j,k]	1.0	0.98 (0.93, 1.03)	0.97 (0.91, 1.02)	0.96 (0.86, 1.07)	0.22
	Fruit Drinks				
No. of deaths	13,296	500	307	40	
Rate per 1,000 person-years	7.8	4.4	4.2	4.5	
Age-adjusted HR (95% CI)	1.0	1.09 (0.99, 1.19)	1.06 (0.95, 1.19)	1.07 (0.78, 1.45)	0.13
Multivariable-adjusted HR (95% CI)					
Model 1	1.0	1.10 (1.00, 1.21)	1.07 (0.96, 1.20)	1.00 (0.73, 1.36)	0.18
Model 2	1.0	1.09 (0.99, 1.20)	1.03 (0.91, 1.16)	1.05 (0.75, 1.47)	0.33
Model 3	1.0	1.11 (1.01, 1.22)	1.06 (0.94, 1.19)	1.07 (0.76, 1.50)	0.14
Model 4	1.0	1.09 (0.99, 1.20)	1.03 (0.91, 1.16)	1.05 (0.75, 1.47)	0.32
	Caloric soft drinks				
No. of deaths	10,463	2,002	1,432	246	
Rate per 1,000 person-years	8.4	6.5	5.0	4.0	
Age-adjusted HR (95% CI)	1.0	0.96 (0.91, 1.00)	1.06 (1.00, 1.12)	1.51 (1.33, 1.71)	<0.0001
Multivariable-adjusted HR (95% CI)					
Model 1	1.0	0.98 (0.93, 1.03)	1.04 (0.99, 1.10)	1.35 (1.19, 1.54)	<0.0001
Model 2	1.0	0.96 (0.92, 1.01)	1.00 (0.95, 1.07)	1.26 (1.10, 1.43)	0.02
Model 3	1.0	0.98 (0.93, 1.03)	1.04 (0.98, 1.10)	1.35 (1.18, 1.53)	<0.0001
Model 4	1.0	0.96 (0.92, 1.01)	1.01 (0.95, 1.07)	1.26 (1.10, 1.44)	0.01
Cardiovascular disease-specific					
	Sweetened bottled waters/teas				
No. of deaths	3,341	459	391	122	
Rate per 1,000 person-years	3.1	1.2	1.1	1.4	
Age-adjusted HR (95% CI)	1.0	0.91 (0.83, 1.01)	0.88 (0.80, 0.98)	1.28 (1.06, 1.53)	0.28
Multivariable-adjusted HR (95% CI)					
Model 1	1.0	0.93 (0.85, 1.03)	0.89 (0.80, 0.99)	1.16 (0.97, 1.39)	0.74
Model 2	1.0	0.93 (0.84, 1.04)	0.88 (0.79, 0.99)	1.11 (0.91, 1.35)	0.89
Model 3	1.0	0.93 (0.84, 1.04)	0.89 (0.80, 1.00)	1.13 (0.93, 1.37)	0.90
Model 4	1.0	0.93 (0.84, 1.04)	0.88 (0.79, 0.99)	1.11 (0.91, 1.34)	0.88
	Fruit Drinks				
No. of deaths	4,082	152	73	6	

Rate per 1,000 person-years	2.4	1.3	1.0	0.7	
Age-adjusted HR (95% CI)	1.0	1.19 (1.01, 1.40)	0.92 (0.73, 1.16)	0.57 (0.26, 1.27)	0.68
Multivariable-adjusted HR (95% CI)					
Model 1	1.0	1.19 (1.01, 1.40)	0.93 (0.73, 1.17)	0.55 (0.25, 1.23)	0.42
Model 2	1.0	1.20 (1.01, 1.43)	0.87 (0.67, 1.11)	0.52 (0.19, 1.37)	0.32
Model 3	1.0	1.23 (1.04, 1.46)	0.90 (0.70, 1.15)	0.51 (0.19, 1.37)	0.46
Model 4	1.0	1.21 (1.01, 1.43)	0.87 (0.67, 1.11)	0.52 (0.19, 1.39)	0.32
Caloric soft drinks					
No. of deaths	3,222	612	428	51	
Rate per 1,000 person-years	2.6	2.0	1.5	0.8	
Age-adjusted HR (95% CI)	1.0	0.98 (0.90, 1.07)	1.13 (1.02, 1.25)	1.38 (1.05, 1.82)	0.002
Multivariable-adjusted HR (95% CI)					
Model 1	1.0	0.99 (0.91, 1.08)	1.10 (0.99, 1.22)	1.19 (0.90, 1.57)	0.04
Model 2	1.0	0.97 (0.88, 1.06)	1.04 (0.93, 1.16)	1.10 (0.82, 1.47)	0.40
Model 3	1.0	0.98 (0.89, 1.08)	1.08 (0.97, 1.20)	1.18 (0.88, 1.57)	0.10
Model 4	1.0	0.97 (0.88, 1.06)	1.04 (0.93, 1.16)	1.10 (0.82, 1.47)	0.38

Cancer-specific

Sweetened bottled waters/teas					
No. of deaths	2,785	640	579	123	
Rate per 1,000 person-years	2.6	1.7	1.7	1.5	
Age-adjusted HR (95% CI)	1.0	1.04 (0.95, 1.13)	1.03 (0.94, 1.12)	0.92 (0.77, 1.10)	0.68
Multivariable-adjusted HR (95% CI)					
Model 1	1.0	1.05 (0.96, 1.15)	1.03 (0.94, 1.13)	0.88 (0.73, 1.05)	0.32
Model 2	1.0	1.06 (0.96, 1.16)	1.01 (0.92, 1.11)	0.84 (0.70, 1.02)	0.15
Model 3	1.0	1.06 (0.97, 1.16)	1.02 (0.93, 1.13)	0.88 (0.73, 1.06)	0.31
Model 4	1.0	1.06 (0.97, 1.16)	1.01 (0.92, 1.12)	0.84 (0.70, 1.02)	0.15
Fruit Drinks					
No. of deaths	3,866	153	93	15	
Rate per 1,000 person-years	2.3	1.3	1.3	1.7	
Age-adjusted HR (95% CI)	1.0	0.93 (0.79, 1.10)	0.92 (0.75, 1.13)	1.16 (0.70, 1.92)	0.68
Multivariable-adjusted HR (95% CI)					
Model 1	1.0	0.99 (0.84, 1.17)	0.96 (0.78, 1.18)	1.07 (0.65, 1.78)	0.90
Model 2	1.0	0.97 (0.82, 1.15)	0.90 (0.72, 1.12)	1.17 (0.70, 1.94)	0.70
Model 3	1.0	0.97 (0.82, 1.15)	0.91 (0.73, 1.13)	1.21 (0.73, 2.00)	0.83
Model 4	1.0	0.97 (0.82, 1.15)	0.90 (0.72, 1.12)	1.17 (0.70, 1.94)	0.70
Caloric soft drinks					
No. of deaths	3,004	581	440	102	
Rate per 1,000 person-years	2.4	1.9	1.5	1.7	
Age-adjusted HR (95% CI)	1.0	0.91 (0.83, 1.00)	0.96 (0.86, 1.06)	1.40 (1.15, 1.71)	0.06
Multivariable-adjusted HR (95% CI)					
Model 1	1.0	0.96 (0.88, 1.05)	0.99 (0.89, 1.10)	1.36 (1.11, 1.66)	0.04
Model 2	1.0	0.97 (0.88, 1.06)	0.97 (0.87, 1.08)	1.33 (1.08, 1.63)	0.08
Model 3	1.0	0.97 (0.89, 1.07)	0.99 (0.89, 1.10)	1.38 (1.13, 1.69)	0.03
Model 4	1.0	0.97 (0.88, 1.06)	0.97 (0.87, 1.08)	1.33 (1.08, 1.63)	0.08

Other-cause

Sweetened bottled waters/teas					

No. of deaths	4,268	660	628	147	
Rate per 1,000 person-years	3.9	1.7	1.8	1.7	
Age-adjusted HR (95% CI)	1.0	0.92 (0.85, 1.01)	0.98 (0.90, 1.07)	1.03 (0.87, 1.22)	0.95
Multivariable-adjusted HR (95% CI)					
Model 1	1.0	0.95 (0.87, 1.03)	0.99 (0.91, 1.08)	0.96 (0.81, 1.13)	0.59
Model 2	1.0	0.93 (0.85, 1.01)	0.98 (0.89, 1.07)	0.96 (0.81, 1.14)	0.50
Model 3	1.0	0.93 (0.85, 1.02)	1.00 (0.91, 1.09)	1.00 (0.84, 1.18)	0.91
Model 4	1.0	0.93 (0.85, 1.02)	0.98 (0.89, 1.07)	0.96 (0.81, 1.14)	0.50
Fruit Drinks					
No. of deaths	5,348	195	141	19	
Rate per 1,000 person-years	3.1	1.7	1.8	1.7	
Age-adjusted HR (95% CI)	1.0	1.11 (0.96, 1.28)	1.27 (1.07, 1.50)	1.31 (0.84, 2.06)	0.002
Multivariable-adjusted HR (95% CI)					
Model 1	1.0	1.12 (0.97, 1.30)	1.27 (1.08, 1.51)	1.22 (0.78, 1.91)	0.004
Model 2	1.0	1.11 (0.96, 1.30)	1.26 (1.06, 1.50)	1.27 (0.76, 2.10)	0.005
Model 3	1.0	1.14 (0.98, 1.33)	1.30 (1.09, 1.55)	1.29 (0.78, 2.14)	0.001
Model 4	1.0	1.12 (0.96, 1.30)	1.26 (1.06, 1.50)	1.27 (0.76, 2.11)	0.005
Caloric soft drinks					
No. of deaths	4,237	809	564	93	
Rate per 1,000 person-years	3.4	2.6	2.0	1.5	
Age-adjusted HR (95% CI)	1.0	0.96 (0.89, 1.04)	1.06 (0.97, 1.16)	1.59 (1.29, 1.96)	0.0002
Multivariable-adjusted HR (95% CI)					
Model 1	1.0	0.98 (0.91, 1.06)	1.04 (0.95, 1.14)	1.42 (1.16, 1.75)	0.005
Model 2	1.0	0.97 (0.88, 1.06)	1.00 (0.91, 1.10)	1.28 (1.02, 1.59)	0.15
Model 3	1.0	0.97 (0.90, 1.05)	1.05 (0.96, 1.15)	1.39 (1.12, 1.72)	0.008
Model 4	1.0	0.96 (0.88, 1.04)	1.00 (0.91, 1.10)	1.28 (1.02, 1.59)	0.14

[a]Total person-time: 1,897,745 years.

[b]1 serving of caloric soft drink is 12 fluid ounces, 1 serving of sweetened bottled water/tea is 8 fluid ounces.

[c]Models were reciprocally adjusted for the other beverage types.

[d]HR=hazard ratio.

[e]CI=confidence interval.

[f]Model 1 adjusted for: age, race, socioeconomic status, marital status, smoking, alcohol intake, cardiovascular disease family history, cancer family history, diabetes family history, history of hypertension, physical activity, aspirin use, multivitamin use, use of at least one anti-hypertensive medication, menopausal status, menopausal hormone therapy use, and oral contraceptive use.

[g]Model 2 adjusted for: age, race/ethnicity, socioeconomic status, marital status, smoking, alcohol intake, history of hypertension, physical activity, aspirin use, multivitamin use, use of at least one anti-hypertensive medication, menopausal status, menopausal hormone therapy use, oral contraceptive use, body mass index, total energy intake, and intakes of fruit and vegetable, red meat, processed meat, fish, refined carbohydrates, dietary fiber, and coffee/tea beverages.

[h]Intakes of dietary variables are adjusted for energy intake (residual method) in Model 2 in addition to having total energy adjustment.

[i]Model 3 adjusted for: variables in Model 1 and body mass index. This model assesses the impact of body mass index adjustment.

[j]Model 4 adjusted for: variables in Model 2 with the exception of total energy intake. This model assesses the impact of over-adjustment by total energy intake.

[k]Intakes of dietary variables are adjusted for energy intake (residual method) in Model 4.

Table 5. Mortality risk[a] in California Teachers Study participants (n=100,314) according to sugar-sweetened beverage[b] consumption in cups per day categories.

Mortality	Rare/ never	>rare/never to <0.5 cup/day	≥0.5 to <1 cup/day	≥1 to <1.5 cups/day	≥1.5 cups/day	P trend
All-cause						
No. of deaths	7,838	4,239	1,078	502	486	
Rate per 1,000 person-years	10.4	5.9	5.2	5.0	4.0	
Age-adjusted HR[c] (95% CI[d])	1.0	0.95 (0.91, 0.99)	1.07 (1.00, 1.14)	1.16 (1.06, 1.27)	1.27 (1.16, 1.39)	<0.0001
Multivariable-adjusted HR (95% CI)						
Model 1[e]	1.0	0.97 (0.94, 1.01)	1.06 (1.00, 1.13)	1.11 (1.01, 1.22)	1.17 (1.06, 1.28)	<0.0001
Model 2[f,g]	1.0	0.96 (0.92, 1.00)	1.03 (0.96, 1.10)	1.05 (0.95, 1.16)	1.12 (1.02, 1.24)	0.01
Cardiovascular disease-specific						
No. of deaths	2,513	1,273	291	116	120	
Rate per 1,000 person-years	3.3	1.8	1.4	1.1	1.0	
Age-adjusted HR (95% CI)	1.0	0.98 (0.92, 1.05)	1.06 (0.94, 1.20)	1.03 (0.86, 1.24)	1.29 (1.08, 1.55)	0.01
Multivariable-adjusted HR (95% CI)						
Model 1	1.0	1.00 (0.93, 1.07)	1.03 (0.91, 1.17)	0.97 (0.80, 1.17)	1.15 (0.96, 1.38)	0.28
Model 2	1.0	0.98 (0.91, 1.06)	0.98 (0.86, 1.12)	0.87 (0.71, 1.07)	1.09 (0.90, 1.32)	0.96
Cancer-specific						
No. of deaths	2,097	1,318	361	175	176	
Rate per 1,000 person-years	2.8	1.8	1.7	1.7	1.5	
Age-adjusted HR (95% CI)	1.0	0.94 (0.88, 1.01)	1.04 (0.93, 1.16)	1.12 (0.95, 1.30)	1.12 (0.96, 1.31)	0.03
Multivariable-adjusted HR (95% CI)						
Model 1	1.0	0.97 (0.91, 1.04)	1.06 (0.95, 1.19)	1.11 (0.95, 1.29)	1.10 (0.94, 1.28)	0.05
Model 2	1.0	0.97 (0.90, 1.04)	1.03 (0.91, 1.16)	1.07 (0.91, 1.26)	1.07 (0.91, 1.26)	0.19
Other-cause						
No. of deaths	3,228	1,648	426	211	190	
Rate per 1,000 person-years	4.3	2.3	2.1	2.1	1.6	
Age-adjusted HR (95% CI)	1.0	0.93 (0.87, 0.99)	1.09 (0.99, 1.21)	1.28 (1.12, 1.48)	1.34 (1.16, 1.56)	<0.0001
Multivariable-adjusted HR (95% CI)						
Model 1	1.0	0.95 (0.89, 1.01)	1.08 (0.98, 1.20)	1.22 (1.06, 1.40)	1.23 (1.06, 1.43)	<0.0001
Model 2	1.0	0.92 (0.87, 0.98)	1.06 (0.95, 1.18)	1.15 (0.99, 1.34)	1.18 (1.01, 1.38)	0.002

[a]Total person-time: 1,897,745 years.

[b]1 cup is 8 fluid ounces.

[c]HR=hazard ratio

[d]CI=confidence interval.

[e]Model 1 adjusted for: age, race/ethnicity, socioeconomic status, marital status, smoking, alcohol intake, cardiovascular disease family history, cancer family history, diabetes family history, history of hypertension, physical activity, aspirin use, multivitamin use, use of at least one anti-hypertensive medication, menopausal status, menopausal hormone therapy use, and oral contraceptive use.

[f]Model 2 adjusted for: age, race/ethnicity, socioeconomic status, marital status, smoking, alcohol intake, history of hypertension, physical activity, aspirin use, multivitamin use, use of at least one anti-hypertensive medication, menopausal status, menopausal hormone therapy use, oral contraceptive use, body mass index, total energy intake, and intakes of fruit and vegetable, red meat, processed meat, fish, refined carbohydrates, dietary fiber, and coffee/tea beverages.

[g]Intakes of dietary variables are adjusted for energy intake (residual method) in Model 2 in addition to having total energy adjustment.

Table 6. Mortality risk[a] in California Teachers Study participants (n=100,000) according to sugar-sweetened beverage[b] consumption in semiquantitative frequency categories after removal of events that occurred at 2 years follow-up.

Mortality	Rare or never	>rare/never to <1 serving per week	≥1 serving per week to <1 serving per day	≥1 serving per day	P trend
All-Cause					
No. of deaths	7,668	3,489	2,253	419	
Rate per 1,000 person-years	10.2	5.4	5.4	5.1	
Age-adjusted HR[c] (95% CI[d])	1.0	0.97 (0.93, 1.01)	1.02 (0.98, 1.07)	1.15 (1.04, 1.27)	0.008
Multivariable-adjusted HR (95% CI)					
Model 1[e]	1.0	0.99 (0.96, 1.04)	1.02 (0.97, 1.07)	1.05 (0.96, 1.16)	0.22
Model 2[f,g]	1.0	0.97 (0.93, 1.02)	0.97 (0.93, 1.02)	1.00 (0.90, 1.11)	0.56
Cardiovascular disease-specific					
No. of deaths	2,463	1,020	625	112	
Rate per 1,000 person-years	3.3	1.6	1.5	1.4	
Age-adjusted HR (95% CI)	1.0	0.99 (0.92, 1.07)	1.01 (0.93, 1.11)	1.20 (0.99, 1.45)	0.14
Multivariable-adjusted HR (95% CI)					
Model 1	1.0	1.00 (0.93, 1.08)	1.00 (0.92, 1.09)	1.06 (0.88, 1.29)	0.66
Model 2	1.0	0.96 (0.89, 1.04)	0.95 (0.87, 1.04)	1.00 (0.82, 1.21)	0.90
Cancer-specific					
No. of deaths	2,018	1,098	721	144	
Rate per 1,000 person-years	2.7	1.7	1.7	1.7	
Age-adjusted HR (95% CI)	1.0	0.95 (0.88, 1.03)	1.00 (0.92, 1.09)	1.09 (0.92, 1.29)	0.40
Multivariable-adjusted HR (95% CI)					
Model 1	1.0	1.00 (0.92, 1.07)	1.02 (0.93, 1.11)	1.03 (0.87, 1.23)	0.65
Model 2	1.0	1.00 (0.93, 1.08)	0.99 (0.90, 1.08)	1.01 (0.85, 1.21)	0.72
Other-cause					
No. of deaths	3,187	1,371	907	163	
Rate per 1,000 person-years	4.2	2.1	2.2	2.0	
Age-adjusted HR (95% CI)	1.0	0.96 (0.90, 1.02)	1.04 (0.97, 1.12)	1.17 (1.00, 1.37)	0.04
Multivariable-adjusted HR (95% CI)					
Model 1	1.0	0.98 (0.92, 1.04)	1.03 (0.96, 1.11)	1.07 (0.91, 1.25)	0.26
Model 2		0.94 0.88, 1.01)	0.96 (0.91,1.07)	1.00 (0.84, 1.19)	0.58

[a]Total person-time: 1,897,362 years.

[b]1 serving of caloric soft drink is 12 fluid ounces, 1 serving of sweetened bottled water/tea or fruit drink is 8 fluid ounces.

[c]HR=hazard ratio

[d]CI=confidence interval.

[e]Model 1 adjusted for: age, race/ethnicity, socioeconomic status, marital status, smoking, alcohol intake, cardiovascular disease family history, cancer family history, diabetes family history, history of hypertension, physical activity, aspirin use, multivitamin use, use of at least one anti-hypertensive medication, menopausal status, menopausal hormone therapy use, and oral contraceptive use

[f]Model 2 adjusted for: age, race/ethnicity, socioeconomic status, marital status, smoking, alcohol intake, history of hypertension, physical activity, aspirin use, multivitamin use, use of at least one anti-hypertensive medication, menopausal status, menopausal hormone therapy use, oral contraceptive use, body mass index, total energy intake, and intakes of fruit and vegetable, red meat, processed meat, fish, refined carbohydrates, dietary fiber, and coffee/tea beverages.

[g]Intakes of dietary variables are adjusted for energy intake (residual method) in Model 2 in addition to having total energy adjustment.

Table 7. Mortality risk[a] in California Teachers Study participants (n=100,000) according to sugar-sweetened beverage[b] consumption in cups per day categories after removal of events that occurred at 2 years follow-up.

Mortality	Sugar-Sweetened Beverage Consumption					P trend
	Rare/ never	>rare/never to <0.5 cup/day	≥0.5 to <1 cup/day	≥1 to <1.5 cups/day	≥1.5 cups/day	
All Cause						
No. of deaths	7,668	4,150	1,062	482	467	
Rate per 1,000 person-years	10.2	5.8	5.1	4.8	3.9	
Age-adjusted HR[c] (95% CI[d])	1.0	0.95 (0.91, 0.99)	1.08 (1.01, 1.15)	1.14 (1.04, 1.25)	1.25 (1.13, 1.37)	<0.0001
Multivariable-adjusted HR (95% CI)						
Model 1[e]	1.0	0.97 (0.94, 1.01)	1.07 (1.00, 1.14)	1.09 (1.00, 1.20)	1.15 (1.05, 1.26)	<0.0001
Model 2[f,g]	1.0	0.95 (0.92, 0.99)	1.03 (0.96, 1.10)	1.02 (0.92, 1.12)	1.09 (0.98, 1.20)	0.06
Cardiovascular disease-specific						
No. of deaths	2,463	1,245	287	109	116	
Rate per 1,000 person-years	3.3	1.7	1.4	1.1	1.0	
Age-adjusted HR (95% CI)	1.0	0.98 (0.92, 1.05)	1.07 (0.95, 1.21)	0.99 (0.82, 1.21)	1.28 (1.06, 1.55)	0.02
Multivariable-adjusted HR (95% CI)						
Model 1	1.0	0.99 (0.93, 1.07)	1.04 (0.92, 1.18)	0.93 (0.77, 1.13)	1.14 (0.95, 1.38)	0.35
Model 2	1.0	0.96 (0.89, 1.03)	1.00 (0.88, 1.13)	0.86 (0.71, 1.05)	1.02 (0.84, 1.23)	0.88
Cancer-specific						
No. of deaths	2,018	1,276	354	166	167	
Rate per 1,000 person-years	2.7	1.8	1.7	1.6	1.4	
Age-adjusted HR (95% CI)	1.0	0.94 (0.87, 1.01)	1.05 (0.94, 1.18)	1.09 (0.93, 1.28)	1.09 (0.93, 1.28)	0.06
Multivariable-adjusted HR (95% CI)						
Model 1	1.0	0.97 (0.91, 1.05)	1.08 (0.96, 1.21)	1.08 (0.92, 1.27)	1.07 (0.91, 1.26)	0.09
Model 2	1.0	0.98 (0.91, 1.05)	1.05 (0.93, 1.18)	1.06 (0.89, 1.25)	1.06 (0.89, 1.26)	0.09
Other-cause						
No. of deaths	3,187	1,629	421	207	184	
Rate per 1,000 person-years	4.2	2.3	2.0	2.0	1.5	
Age-adjusted HR (95% CI)	1.0	0.93 (0.87, 0.99)	1.10 (0.99, 1.21)	1.28 (1.11, 1.47)	1.32 (1.14, 1.53)	<0.0001
Multivariable-adjusted HR (95% CI)						
Model 1	1.0	0.95 (0.89, 1.01)	1.08 (0.97, 1.20)	1.21 (1.05, 1.40)	1.21 (1.04, 1.41)	0.0001
Model 2	1.0	0.92 (0.86, 0.98)	1.05 (0.94, 1.17)	1.13 (0.97, 1.32)	1.14 (0.97, 1.34)	0.001

[a]Total person-time: 1,897,362 years.

[b]1 cup is 8 fluid ounces.

[c]HR=hazard ratio

[d]CI=confidence interval.

[e]Model adjusted for: age, race/ethnicity, socioeconomic status, marital status, smoking, alcohol intake, cardiovascular disease family history, cancer family history, diabetes family history, history of hypertension, physical activity, aspirin use, multivitamin use, use of at least one anti-hypertensive medication, menopausal status, menopausal hormone therapy use, and oral contraceptive use.

[f]Model 2 adjusted for: age, race/ethnicity, socioeconomic status, marital status, smoking, alcohol intake, history of hypertension, physical activity, aspirin use, multivitamin use, use of at least one anti-hypertensive medication, menopausal status, menopausal hormone therapy use, oral contraceptive use, body mass index, total energy intake, and intakes of fruit and vegetable, red meat, processed meat, fish, refined carbohydrates, dietary fiber, and coffee/tea beverages.

[g]Intakes of dietary variables are adjusted for energy intake (residual method) in Model 2 in addition to having total energy adjustment.