

Supplementary Online Content

Mullee A, Romaguera D, Pearson-Stuttard J, et al. Association between soft drink consumption and mortality in 10 European countries. *JAMA Intern Med*. Published online September 3, 2019. doi:10.1001/jamainternmed.2019.2478

eFigure. Hazard Ratio (HR) Functions and Corresponding 95% CIs Describing the Linear (Light Blue) and the Curve-Linear (Dark Blue) Dose–Response Relationship Between Soft Drinks Consumption (mL/day) and All-Cause Mortality Risk, According to Death Frequencies

eTable 1. Analysis of Association Between Soft Drinks Consumption and All-Cause Mortality by Country

eTable 2. Body Mass Index Subgroup Analysis of Association Between Artificially Sweetened and Sugar-Sweetened Soft Drinks Consumption and All-Cause and Cause-Specific Mortality

eTable 3. Multivariable Associations of Categories of Soft Drinks Consumption and All-Cause and Cause-Specific Mortality With and Without Adjustment for Body Mass Index (Sexes Combined)

eTable 4. Multivariable Associations of Categories of Soft Drinks Consumption and All-Cause and Cause-Specific Mortality With Deaths That Occurred During the First 8 Years of Follow-up Excluded

eTable 5. Multivariable Associations of Categories of Soft Drinks Consumption and All-Cause and Cause-Specific Mortality With Non-Consumers as the Reference Group

eTable 6. Multivariable Associations of Categories of Soft Drinks Consumption and All-Cause and Cause-Specific Mortality With Adjustment for an Adapted Version of the WCRF Dietary Score (Rather than Individual Dietary Covariates)

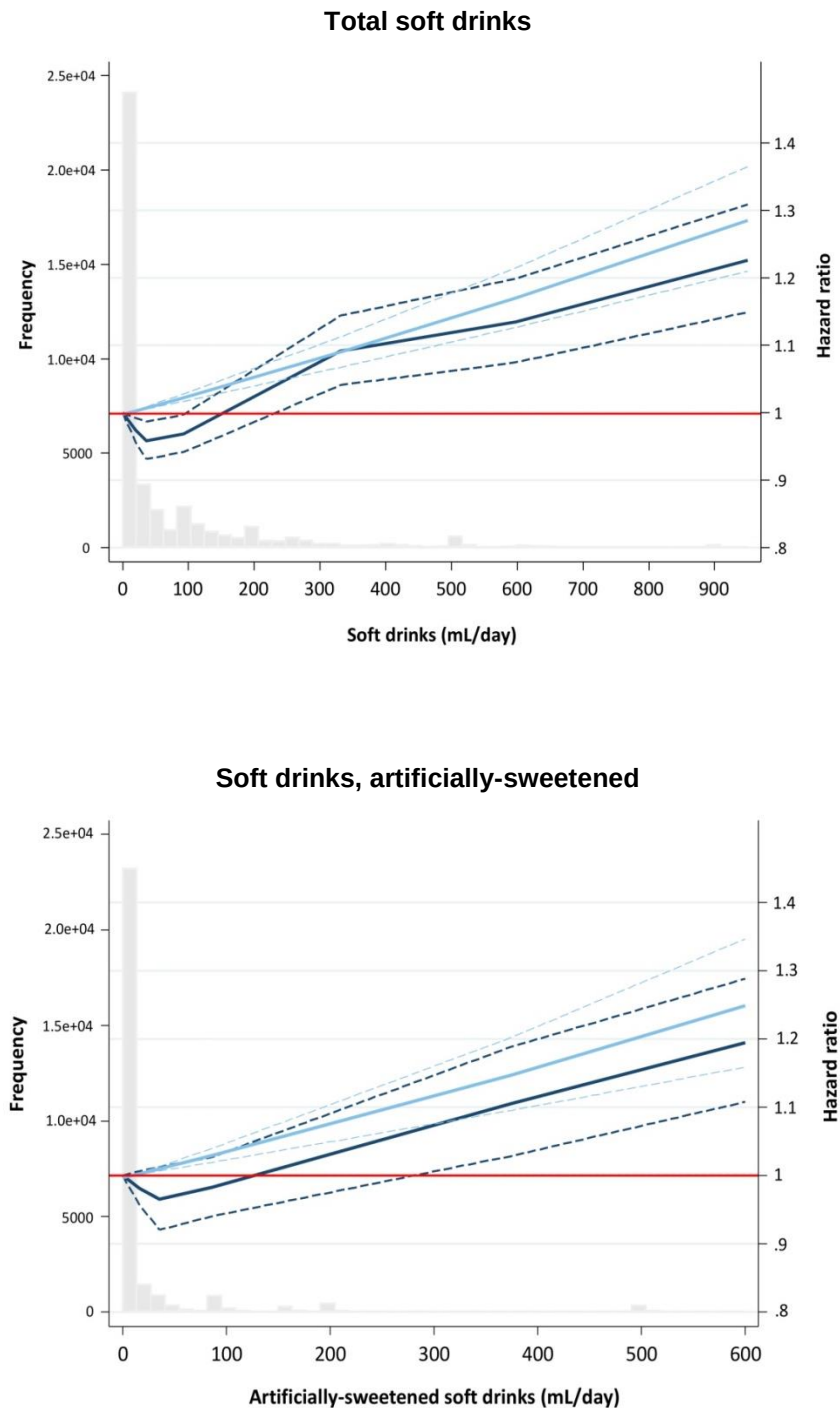
eTable 7. Associations of Categories of Artificially Sweetened and Sugar-Sweetened Soft Drinks Consumption With All-Cause and Cause-Specific Mortality Among Participants Who Solely Consumed Sugar-Sweetened or Artificially Sweetened Soft Drinks

eTable 8. Multivariable Associations of Categories of Soft Drinks Consumption and All-Cause Mortality by Ascertainment of Death Method

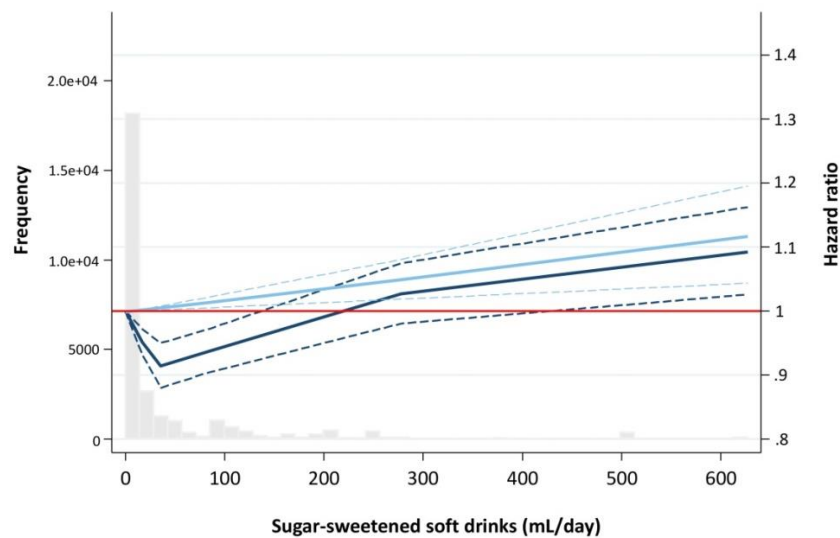
eTable 9. Multivariable Associations of Categories of Soft Drinks Consumption and Deaths Due to External Causes (ICD-10 Codes S00-Y98)

This supplementary material has been provided by the authors to give readers additional information about their work.

eFigure. Hazard Ratio (HR) Functions and Corresponding 95% CIs Describing the Linear (Light Blue) and the Curve-Linear (Dark Blue) Dose–Response Relationship Between Soft Drinks Consumption (mL/day) and All-Cause Mortality Risk, According to Death Frequencies



Soft drinks, sugar-sweetened



Multivariable model-Cox regression using body mass index (<22; 22-<25; 25-<30; 30-<35; ≥ 35 kg/m²), physical activity index (inactive; moderately inactive; moderately active; active), education status (none; primary school completed; technical/professional school; secondary school; longer education including university; not specified), alcohol consumption (non-consumers; <5; 5-<15; 15-<30; ≥ 30 g/day), smoking status and intensity (never; current, 1-15 cigarettes per day; current, 16-25 cigarettes per day; current, >25 cigarettes per day; former, quit ≤ 10 years; former, quit 11-20 years; former, quit >20 years; current, pipe/cigar/occasional; current/former, missing; unknown), smoking duration (<10; 10-<20; 20-<30; 30-<40; ≥ 40 years; smoking duration unknown), menopausal status (premenopausal; postmenopausal; perimenopausal/unknown menopausal status; surgical postmenopausal), ever use of menopausal hormone therapy (yes; no; unknown), and intakes of total energy (kcal/day), red and processed meat (g/day), fruits and vegetables (g/day), coffee (g/day), and juice (g/day) (all continuous), and stratified by age (1-year categories), center, and sex. Additionally, sugar sweetened and artificially sweetened soft drinks were mutually adjusted. Italy, Spain and Sweden are excluded from the sugar-sweetened and artificially-sweetened soft drinks analyses as information on type of soft drink consumption was not collected.

eTable 1. Analysis of Association Between Soft Drinks Consumption and All-Cause Mortality by Country			
Country	Total soft drinks	Soft drinks, sugar sweetened	Soft drinks, artificially-sweetened
Denmark			
<i>N</i>	51,193	51,193	51,193
Multivariable model, HR (95% CI)	1.05 (0.98-1.13)	0.92 (0.82-1.06)	1.20 (1.10-1.32)
France			
<i>N</i>	65,566	65,566	65,566
Multivariable model, HR (95% CI)	1.50 (1.07-2.10)	1.70 (1.02-2.84)	1.38 (0.80-2.38)
Germany			
<i>N</i>	45,432	45,432	45,432
Multivariable model, HR (95% CI)	1.19 (1.04-1.37)	1.21 (1.03-1.42)	1.11 (0.88-1.40)
Greece			
<i>N</i>	23,014	23,014	23,014
Multivariable model, HR (95% CI)	1.29 (1.04-1.61)	1.60 (1.21-2.12)	1.41 (0.51-3.90)
Italy			
<i>N</i>	42,945	-	-
Multivariable model, HR (95% CI)	1.38 (1.11-1.71)	-	-
The Netherlands			
<i>N</i>	35,069	35,069	35,069
Multivariable model, HR (95% CI)	1.05 (0.92-1.19)	1.16 (0.99-1.37)	1.00 (0.72-1.40)
Norway			
<i>N</i>	33,341	33,341	33,341
Multivariable model, HR (95% CI)	1.10 (0.89-1.36)	1.21 (0.90-1.63)	1.05 (0.82-1.36)
Spain			
<i>N</i>	37,321	-	-

Multivariable model, HR (95% CI)	1.16 (0.96-1.40)	-	-
Sweden			
<i>N</i>	46,497	-	-
Multivariable model, HR (95% CI)	1.15 (1.07-1.25)	-	-
United Kingdom			
<i>N</i>	71,365	71,365	71,365
Multivariable model, HR (95% CI)	1.09 (1.01-1.17)	1.06 (0.98-1.15)	1.19 (1.03-1.38)
Random effects meta-analysis	1.11 (1.07-1.15)	1.07 (1.01-1.13)	1.17 (1.09-1.25)
I²	26%	63%	0%
<i>p</i>-heterogeneity	0.21	0.01	0.86
Cox proportional hazards models stratified by center	1.13 (1.09-1.17)	1.08 (1.03-1.14)	1.20 (1.12-1.29)
HR = hazard ratio; CI = confidence interval. HRs for the comparison of participants drinking ≥1 glass per day versus <1 glass per month. Multivariable model -Cox regression using body mass index (<22; 22-<25; 25-<30; 30-<35; ≥35 kg/m ²), physical activity index (inactive; moderately inactive; moderately active; active), education status (none; primary school completed; technical/professional school; secondary school; longer education including university; or not specified), alcohol consumption (non-consumers; <5; 5-<15; 15-<30; ≥30 g/day), smoking status and intensity (never; current, 1-15 cigarettes per day; current, 16-25 cigarettes per day; current, ≥16 cigarettes per day; former, quit ≤10 years; former, quit 11-20 years; former, quit ≥20 years; current, pipe/cigar/occasional; current/former, missing; unknown), smoking duration (<10; 10-<20; 20-<30; 30-<40; ≥40 years; smoking duration unknown), ever use of contraceptive pill (yes; no; or unknown), menopausal status (premenopausal; postmenopausal; perimenopausal/unknown menopausal status; or surgical postmenopausal), ever use of menopausal hormone therapy (yes; no; or unknown), and intakes of total energy (kcal/day), red and processed meat (g/day), fruits and vegetables (g/day), coffee (g/day), and fruit and vegetable juice (g/day) (all continuous), and stratified by age (1-year categories), center, and sex.			

eTable 2. Body Mass Index Subgroup Analysis of Association Between Artificially Sweetened and Sugar-Sweetened Soft Drinks Consumption and All-Cause and Cause-Specific Mortality

	Soft drinks, artificially sweetened	<i>p</i> -interaction		Soft drinks, sugar sweetened	<i>p</i> -interaction
	Multivariable model, HR (95% CI)			Multivariable model, HR (95% CI)	
All-cause mortality					
Body mass index, kg/m ²		0.54			0.002
<25	1.27 (1.12-1.43)			1.11 (1.03-1.21)	
25-<30	1.16 (1.04-1.29)			0.98 (0.90-1.06)	
≥30	1.22 (1.07-1.39)			1.23 (1.10-1.39)	
Cancer (ICD-10 codes C00-D48)					
Body mass index, kg/m ²		0.33			0.28
<25	1.09 (0.91-1.30)			0.94 (0.82-1.07)	
25-<30	1.07 (0.91-1.26)			0.92 (0.80-1.05)	
≥30	1.02 (0.82-1.27)			1.09 (0.89-1.33)	
Circulatory diseases (ICD-10 codes I00-I99)					
Body mass index, kg/m ²		0.48			0.07
<25	1.59 (1.19-2.13)			1.20 (1.00-1.44)	
25-<30	1.22 (0.96-1.54)			0.90 (0.76-1.07)	
≥30	1.59 (1.23-2.06)			1.33 (1.06-1.67)	
Digestive diseases (ICD-10 codes K00-K93)					
Body mass index, kg/m ²		0.03			0.96
<25	2.38 (1.31-4.34)			1.80 (1.18-2.74)	
25-<30	0.84 (0.42-1.67)			1.48 (0.99-2.21)	
≥30	0.29 (0.09-0.92)			1.42 (0.82-2.46)	

HR = hazard ratio; CI = confidence interval. HRs for the comparison of participants drinking ≥ 1 glass per day versus < 1 glass per month. ICD-10 = International Classification of Diseases, 10th Revision. Multivariate model-Cox regression using body mass index (< 22 ; 22- < 25 ; 25- < 30 ; 30- < 35 ; 35+ kg/m²), physical activity index (inactive; moderately inactive; moderately active; active), education status (none; primary school completed; technical/professional school; secondary school; longer education including university; or not specified), alcohol consumption (non-consumers; < 5 ; 5- < 15 ; 15- < 30 ; 30+ g/day), smoking status and intensity (never; current, 1-15 cigarettes per day; current, 16-25 cigarettes per day; current, 16+ cigarettes per day; former, quit ≤ 10 years; former, quit 11-20 years; former, quit 20+ years; current, pipe/cigar/occasional; current/former, missing; unknown), smoking duration (< 10 ; 10- < 20 ; 20- < 30 ; 30- < 40 ; 40+ years; smoking duration unknown), ever use of contraceptive pill (yes; no; or unknown), menopausal status (premenopausal; postmenopausal; perimenopausal/unknown menopausal status; or surgical postmenopausal), ever use of menopausal hormone therapy (yes; no; or unknown), and intakes of total energy (kcal/day), red and processed meat (g/day), and fruits and vegetables (g/day), coffee (g/day), juice (g/day) (all continuous), and stratified by age (1-year categories), and center.

eTable 3. Multivariable Associations of Categories of Soft Drinks Consumption and All-Cause and Cause-Specific Mortality With and Without Adjustment for Body Mass Index (Sexes Combined)

	<1 glass/month	1–4 glasses/month	>1–6 glasses/week	1-<2 glasses/day	≥2 glasses/day	<i>ptrend</i>
All-cause mortality						
Total soft drinks						
Multivariable model, HR (95% CI)	1 (ref)	0.97 (0.94-1.00)	0.98 (0.96-1.01)	1.10 (1.06-1.16)	1.17 (1.11-1.22)	<.0001
Multivariable model excluding body mass index, HR (95% CI)	1 (ref)	0.97 (0.94-1.00)	0.99 (0.96-1.02)	1.12 (1.07-1.17)	1.19 (1.13-1.25)	<.0001
Soft drinks, artificially-sweetened						
Multivariable model, HR (95% CI)	1 (ref)	0.93 (0.89-0.97)	1.01 (0.97-1.05)	0.99 (0.84-1.17)	1.26 (1.16-1.35)	<.0001
Multivariable model excluding body mass index, HR (95% CI)	1 (ref)	0.94 (0.90-0.98)	1.02 (0.98-1.07)	1.03 (0.87-1.21)	1.30 (1.21-1.40)	<.0001
Soft drinks, sugar-sweetened						
Multivariable model, HR (95% CI)	1 (ref)	0.94 (0.91-0.98)	0.96 (0.93-1.00)	1.08 (1.01-1.16)	1.08 (1.01-1.16)	0.004
Multivariable model excluding body mass index, HR (95% CI)	1 (ref)	0.94 (0.91-0.98)	0.97 (0.93-1.00)	1.08 (1.01-1.15)	1.09 (1.01-1.17)	0.003
Cancer (ICD-10 codes C00-D48)						
Total soft drinks						
Multivariable model, HR (95% CI)	1 (ref)	0.99 (0.95-1.04)	1.00 (0.96-1.04)	1.02 (0.95-1.10)	1.02 (0.95-1.11)	0.45
Multivariable model excluding body mass index, HR (95% CI)	1 (ref)	1.00 (0.95-1.04)	1.00 (0.97-1.04)	1.03 (0.95-1.10)	1.03 (0.96-1.12)	0.29
Soft drinks, artificially-sweetened						
Multivariable model, HR (95% CI)	1 (ref)	0.96 (0.90-1.02)	1.00 (0.94-1.06)	0.92 (0.73-1.16)	1.10 (0.97-1.23)	0.23
Multivariable model excluding body mass index, HR (95% CI)	1 (ref)	0.96 (0.90-1.02)	1.01 (0.95-1.07)	0.93 (0.74-1.18)	1.11 (0.99-1.25)	0.14
Soft drinks, sugar-sweetened						
Multivariable model, HR (95% CI)	1 (ref)	0.95 (0.90-1.01)	0.97 (0.92-1.02)	0.97 (0.86-1.09)	0.95 (0.84-1.06)	0.33
Multivariable model excluding body mass index, HR (95% CI)	1 (ref)	0.95 (0.90-1.01)	0.97 (0.92-1.02)	0.97 (0.86-1.09)	0.95 (0.85-1.06)	0.35
Circulatory diseases (ICD-10 codes I00-I99)						
Total soft drinks						

Multivariable model, HR (95% CI)	1 (ref)	0.96 (0.90-1.02)	0.98 (0.93-1.03)	1.19 (1.09-1.31)	1.27 (1.14-1.40)	<.0001
Multivariable model excluding body mass index, HR (95% CI)	1 (ref)	0.97 (0.91-1.03)	1.00 (0.95-1.06)	1.23 (1.13-1.35)	1.33 (1.20-1.48)	<.0001
Soft drinks, artificially-sweetened						
Multivariable model, HR (95% CI)	1 (ref)	0.91 (0.83-1.00)	1.01 (0.92-1.11)	1.02 (0.70-1.50)	1.52 (1.30-1.78)	<.0001
Multivariable model excluding body mass index, HR (95% CI)	1 (ref)	0.92 (0.84-1.02)	1.07 (0.97-1.17)	1.11 (0.76-1.63)	1.65 (1.41-1.93)	<.0001
Soft drinks, sugar-sweetened						
Multivariable model, HR (95% CI)	1 (ref)	0.97 (0.90-1.05)	0.96 (0.90-1.04)	1.06 (0.92-1.22)	1.11 (0.95-1.30)	0.16
Multivariable model excluding body mass index, HR (95% CI)	1 (ref)	0.98 (0.91-1.05)	0.97 (0.91-1.05)	1.07 (0.93-1.23)	1.13 (0.96-1.32)	0.10
Digestive diseases (ICD-10 codes K00-K93)‡						
Total soft drinks						
Multivariable model, HR (95% CI)	1 (ref)	1.07 (0.89-1.28)	1.16 (1.00-1.34)	1.50 (1.24-1.81)		<.0001
Multivariable model excluding body mass index, HR (95% CI)	1 (ref)	1.08 (0.90-1.29)	1.18 (1.02-1.37)	1.56 (1.29-1.88)		<.0001
Soft drinks, artificially-sweetened						
Multivariable model, HR (95% CI)	1 (ref)	1.00 (0.79-1.27)	1.19 (0.95-1.50)	0.99 (0.65-1.50)		0.78
Multivariable model excluding body mass index, HR (95% CI)	1 (ref)	1.02 (0.81-1.29)	1.27 (1.01-1.59)	1.10 (0.72-1.66)		0.39
Soft drinks, sugar-sweetened						
Multivariable model, HR (95% CI)	1 (ref)	1.05 (0.86-1.28)	1.07 (0.88-1.29)	1.59 (1.24-2.05)		<.0001
Multivariable model excluding body mass index, HR (95% CI)	1 (ref)	1.05 (0.86-1.28)	1.07 (0.88-1.30)	1.60 (1.24-2.06)		<.0001

HR = hazard ratio; CI = confidence interval. ICD-10 = International Classification of Diseases, 10th Revision. Multivariable model-Cox regression using body mass index (<22; 22-<25; 25-<30; 30-<35; ≥35 kg/m²), physical activity index (inactive; moderately inactive; moderately active; active), education status (none; primary school completed; technical/professional school; secondary school; longer education including university; or not specified), alcohol consumption (non-consumers; <5; 5-<15; 15-<30; ≥30 g/day), smoking status and intensity (never; current, 1-15 cigarettes per day; current, 16-25 cigarettes per day; current, ≥16 cigarettes per day; former, quit ≤10 years; former, quit 11-20 years; former, quit ≥20 years; current, pipe/cigar/occasional; current/former, missing; unknown), smoking duration (<10; 10-<20; 20-<30; 30-<40; ≥40 years; smoking duration unknown), ever use of contraceptive pill (yes; no; or unknown), menopausal status (premenopausal; postmenopausal; perimenopausal/unknown menopausal status; or surgical postmenopausal), ever use of menopausal hormone therapy (yes; no; or unknown), and intakes of total energy (kcal/day), red and processed meat (g/day), fruits and vegetables (g/day), coffee (g/day), and fruit and vegetable juice (g/day) (all continuous), and stratified by age (1-year categories), center, and sex. Additionally, sugar sweetened and artificially sweetened soft drinks were mutually adjusted. Italy, Spain and Sweden are excluded from the sugar-sweetened and artificially-sweetened soft drinks analyses as information on type of soft drink consumption was not collected. ‡Top two categories were merged as '≥1 glasses/day' due to low case numbers.

eTable 4. Multivariable Associations of Categories of Soft Drinks Consumption and All-Cause and Cause-Specific Mortality With Deaths That Occurred During the First 8 Years of Follow-up Excluded

	<1 glass/month	1–4 glasses/month	>1–6 glasses/week	1–<2 glasses/day	≥2 glasses/day	<i>ptrend</i>
All-cause mortality						
Total soft drinks, HR (95% CI)	1 (ref)	0.95 (0.92-0.99)	0.98 (0.95-1.01)	1.09 (1.04-1.15)	1.14 (1.07-1.21)	<.0001
Soft drinks, artificially-sweetened, HR (95% CI)	1 (ref)	0.93 (0.89-0.98)	0.98 (0.94-1.03)	0.98 (0.80-1.19)	1.24 (1.14-1.36)	<.0001
Soft drinks, sugar-sweetened, HR (95% CI)	1 (ref)	0.93 (0.89-0.97)	0.96 (0.92-1.00)	1.06 (0.98-1.15)	1.04 (0.95-1.13)	0.12
Cancer (ICD-10 codes C00-D48)						
Total soft drinks, HR (95% CI)	1 (ref)	0.98 (0.93-1.04)	1.01 (0.96-1.05)	1.00 (0.91-1.09)	1.03 (0.94-1.14)	0.47
Soft drinks, artificially-sweetened, HR (95% CI)	1 (ref)	0.95 (0.88-1.03)	1.00 (0.93-1.08)	0.91 (0.69-1.22)	1.12 (0.97-1.29)	0.20
Soft drinks, sugar-sweetened, HR (95% CI)	1 (ref)	0.93 (0.88-1.00)	0.96 (0.90-1.02)	0.93 (0.81-1.08)	0.92 (0.80-1.06)	0.19
Circulatory diseases (ICD-10 codes I00-I99)						
Total soft drinks, HR (95% CI)	1 (ref)	0.93 (0.86-1.01)	0.97 (0.91-1.04)	1.19 (1.06-1.32)	1.22 (1.07-1.38)	<.0001
Soft drinks, artificially-sweetened, HR (95% CI)	1 (ref)	0.86 (0.76-0.96)	0.94 (0.83-1.05)	0.91 (0.55-1.49)	1.44 (1.18-1.76)	0.002
Soft drinks, sugar-sweetened, HR (95% CI)	1 (ref)	0.97 (0.88-1.06)	0.96 (0.88-1.05)	1.13 (0.95-1.35)	1.08 (0.88-1.31)	0.25
Digestive diseases (ICD-10 codes K00-K93)‡						
Total soft drinks, HR (95% CI)	1 (ref)	1.05 (0.85-1.30)	1.17 (0.99-1.39)	1.39 (1.10-1.75)		0.004

Soft drinks, artificially-sweetened, HR (95% CI)	1 (ref)	1.15 (0.88-1.49)	1.11 (0.84-1.47)	0.86 (0.50-1.47)	0.66
Soft drinks, sugar-sweetened, HR (95% CI)	1 (ref)	1.06 (0.84-1.34)	1.11 (0.88-1.39)	1.36 (0.99-1.88)	0.06

HR = hazard ratio; CI = confidence interval. ICD-10 = International Classification of Diseases, 10th Revision. Multivariable model-Cox regression using body mass index (<22; 22-<25; 25-<30; 30-<35; ≥35 kg/m²), physical activity index (inactive; moderately inactive; moderately active; active), education status (none; primary school completed; technical/professional school; secondary school; longer education including university; or not specified), alcohol consumption (non-consumers; <5; 5-<15; 15-<30; ≥30 g/day), smoking status and intensity (never; current, 1-15 cigarettes per day; current, 16-25 cigarettes per day; current, ≥16 cigarettes per day; former, quit ≤10 years; former, quit 11-20 years; former, quit ≥20 years; current, pipe/cigar/occasional; current/former, missing; unknown), smoking duration (<10; 10-<20; 20-<30; 30-<40; ≥40 years; smoking duration unknown), ever use of contraceptive pill (yes; no; or unknown), menopausal status (premenopausal; postmenopausal; perimenopausal/unknown menopausal status; or surgical postmenopausal), ever use of menopausal hormone therapy (yes; no; or unknown), and intakes of total energy (kcal/day), red and processed meat (g/day), fruits and vegetables (g/day), coffee (g/day), and fruit and vegetable juice (g/day) (all continuous), and stratified by age (1-year categories), center, and sex. Additionally, sugar sweetened and artificially sweetened soft drinks were mutually adjusted. Italy, Spain and Sweden are excluded from the sugar-sweetened and artificially-sweetened soft drinks analyses as information on type of soft drink consumption was not collected. ‡Top two categories were merged as '≥1 glasses/day' due to low case numbers.

eTable 5. Multivariable Associations of Categories of Soft Drinks Consumption and All-Cause and Cause-Specific Mortality With Non-Consumers as the Reference Group							
	Non-consumers	<1 glass/month	1–4 glasses/month	>1–6 glasses/week	1-<2 glasses/day	≥2 glasses/day	<i>ptrend</i>
All-cause mortality							
Total soft drinks, HR (95% CI)	1 (ref)	0.95 (0.91-0.99)	0.95 (0.92-0.98)	0.97 (0.94-1.00)	1.09 (1.04-1.14)	1.15 (1.09-1.21)	<.0001
Soft drinks, artificially-sweetened, HR (95% CI)	1 (ref)	1.01 (0.96-1.05)	0.94 (0.90-0.98)	1.01 (0.97-1.06)	0.99 (0.84-1.17)	1.26 (1.17-1.36)	<.0001
Soft drinks, sugar-sweetened, HR (95% CI)	1 (ref)	0.92 (0.88-0.96)	0.92 (0.88-0.95)	0.94 (0.91-0.97)	1.05 (0.98-1.13)	1.05 (0.98-1.13)	0.005
Cancer (ICD-10 codes C00-D48)							
Total soft drinks, HR (95% CI)	1 (ref)	1.01 (0.95-1.07)	1.00 (0.95-1.05)	1.00 (0.96-1.05)	1.02 (0.95-1.10)	1.02 (0.95-1.11)	0.44
Soft drinks, artificially-sweetened, HR (95% CI)	1 (ref)	1.05 (0.98-1.12)	0.98 (0.91-1.04)	1.02 (0.95-1.08)	0.93 (0.73-1.17)	1.11 (0.99-1.25)	0.22
Soft drinks, sugar-sweetened, HR (95% CI)	1 (ref)	0.98 (0.92-1.04)	0.95 (0.89-1.00)	0.96 (0.91-1.01)	0.96 (0.86-1.08)	0.94 (0.84-1.06)	0.33
Circulatory diseases (ICD-10 codes I00-I99)							
Total soft drinks, HR (95% CI)	1 (ref)	0.94 (0.87-1.03)	0.94 (0.88-1.01)	0.96 (0.91-1.02)	1.18 (1.07-1.29)	1.25 (1.12-1.39)	<.0001
Soft drinks, artificially-sweetened, HR (95% CI)	1 (ref)	1.04 (0.95-1.15)	0.92 (0.83-1.02)	1.02 (0.93-1.13)	1.03 (0.70-1.51)	1.54 (1.31-1.81)	<.0001
Soft drinks, sugar-sweetened, HR (95% CI)	1 (ref)	0.86 (0.78-0.94)	0.92 (0.85-1.00)	0.91 (0.85-0.99)	1.00 (0.87-1.16)	1.06 (0.90-1.24)	0.17

HR = hazard ratio; CI = confidence interval. Multivariable model-Cox regression using body mass index (<22; 22-<25; 25-<30; 30-<35; ≥35 kg/m²), physical activity index (inactive; moderately inactive; moderately active; active), education status (none; primary school completed; technical/professional school; secondary school; longer education including university; or not specified), alcohol consumption (non-consumers; <5; 5-<15; 15-<30; ≥30 g/day), smoking status and intensity (never; current, 1-15 cigarettes per day; current, 16-25 cigarettes per day; current, ≥16 cigarettes per day; former, quit ≤10 years; former, quit 11-20 years; former, quit ≥20 years; current, pipe/cigar/occasional; current/former, missing; unknown), smoking duration (<10; 10-<20; 20-<30; 30-<40; ≥40 years; smoking duration unknown), ever use of contraceptive pill (yes; no; or unknown), menopausal status (premenopausal; postmenopausal; perimenopausal/unknown menopausal status; or surgical postmenopausal), ever use of menopausal hormone therapy (yes; no; or unknown), and intakes of total energy (kcal/day), red and processed meat (g/day), fruits and vegetables (g/day), coffee (g/day), and fruit and vegetable juice (g/day) (all continuous), and stratified by age (1-year categories), center, and sex. Additionally, sugar sweetened and artificially sweetened soft drinks were mutually adjusted. Italy, Spain and Sweden are excluded from the sugar-sweetened and artificially-sweetened soft drinks analyses as information on type of soft drink consumption was not collected.

eTable 6. Multivariable Associations of Categories of Soft Drinks Consumption and All-Cause and Cause-Specific Mortality With Adjustment for an Adapted Version of the WCRF Dietary Score (Rather than Individual Dietary Covariates)

	<1 glass/month	1–4 glasses/month	>1–6 glasses/week	1–<2 glasses/day	≥2 glasses/day	<i>ptrend</i>
All-cause mortality						
Total soft drinks, HR (95% CI)	1 (ref)	0.96 (0.93-0.99)	0.97 (0.95-1.00)	1.08 (1.03-1.13)	1.14 (1.08-1.19)	<.0001
Soft drinks, artificially-sweetened, HR (95% CI)	1 (ref)	0.93 (0.90-0.97)	1.01 (0.96-1.05)	0.99 (0.84-1.16)	1.24 (1.15-1.34)	<.0001
Soft drinks, sugar-sweetened, HR (95% CI)	1 (ref)	0.94 (0.90-0.97)	0.95 (0.92-0.99)	1.06 (0.99-1.13)	1.06 (0.99-1.14)	0.03
Cancer (ICD-10 codes C00-D48)						
Total soft drinks, HR (95% CI)	1 (ref)	0.99 (0.94-1.03)	0.99 (0.95-1.03)	0.99 (0.92-1.06)	0.99 (0.92-1.08)	0.86
Soft drinks, artificially-sweetened, HR (95% CI)	1 (ref)	0.96 (0.90-1.02)	0.99 (0.93-1.06)	0.90 (0.72-1.14)	1.08 (0.96-1.22)	0.35
Soft drinks, sugar-sweetened, HR (95% CI)	1 (ref)	0.95 (0.90-1.00)	0.95 (0.91-1.00)	0.94 (0.84-1.06)	0.93 (0.83-1.04)	0.14
Circulatory diseases (ICD-10 codes I00-I99)						
Total soft drinks, HR (95% CI)	1 (ref)	0.95 (0.89-1.01)	0.97 (0.92-1.02)	1.16 (1.06-1.27)	1.23 (1.11-1.37)	<.0001
Soft drinks, artificially-sweetened, HR (95% CI)	1 (ref)	0.91 (0.83-1.00)	1.00 (0.91-1.10)	1.01 (0.69-1.48)	1.49 (1.28-1.75)	<.0001
Soft drinks, sugar-sweetened, HR (95% CI)	1 (ref)	0.96 (0.89-1.04)	0.95 (0.88-1.02)	1.03 (0.90-1.19)	1.08 (0.93-1.27)	0.29
Digestive diseases (ICD-10 codes K00-K93)						
Total soft drinks, HR (95% CI)	1 (ref)	1.04 (0.87-1.24)	1.13 (0.97-1.31)	1.43 (1.18-1.74)		<.0001
Soft drinks, artificially-sweetened, HR (95% CI)	1 (ref)	0.99 (0.79-1.25)	1.16 (0.92-1.46)	0.94 (0.62-1.43)		0.99
Soft drinks, sugar-sweetened, HR (95% CI)	1 (ref)	1.03 (0.84-1.25)	1.05 (0.86-1.27)	1.54 (1.19-1.98)		0.001

HR = hazard ratio; CI = confidence interval. Multivariable model-Cox regression using body mass index (<22; 22-<25; 25-<30; 30-<35; ≥35 kg/m²), physical activity index (inactive; moderately inactive; moderately active; active), education status (none; primary school completed; technical/professional school; secondary school; longer education including university; or not specified), alcohol consumption (non-consumers; <5; 5-<15; 15-<30; ≥30 g/day), smoking status and intensity (never; current, 1-15 cigarettes per day; current, 16-25 cigarettes per day; current, ≥16 cigarettes per day; former, quit ≤10 years; former, quit 11-20 years; former, quit ≥20 years; current, pipe/cigar/occasional; current/former, missing; unknown), smoking duration (<10; 10-<20; 20-<30; 30-<40; ≥40 years; smoking duration unknown), ever use of contraceptive pill (yes; no; or unknown), menopausal status (premenopausal; postmenopausal; perimenopausal/unknown menopausal status; or surgical postmenopausal), ever use of menopausal hormone therapy (yes; no; or unknown), intake of total energy (kcal/day), WCRF dietary score (sex-specific quintiles), and stratified by age (1-year categories), center, and sex. Italy, Spain and Sweden are excluded from the sugar-sweetened and artificially-sweetened soft drinks analyses as information on type of soft drink consumption was not collected.

eTable 7. Associations of Categories of Artificially Sweetened and Sugar-Sweetened Soft Drinks Consumption With All-Cause and Cause-Specific Mortality Among Participants Who Solely Consumed Sugar-Sweetened or Artificially Sweetened Soft Drinks

	<1 glass/month	1–4 glasses/month	>1–6 glasses/week	≥1 glass/day	<i>ptrend</i>
All-cause mortality					
Soft drinks, artificially sweetened					
Deaths, n	11141	600	997	530	
Multivariable model, HR (95% CI)	1 (ref)	0.92 (0.85-1.00)	1.04 (0.98-1.12)	1.22 (1.11-1.33)	<.0001
Soft drinks, sugar sweetened					
Deaths, n	11866	2144	2696	999	
Multivariable model, HR (95% CI)	1 (ref)	0.95 (0.90-1.00)	0.97 (0.92-1.01)	1.11 (1.04-1.19)	0.003
Cancer (ICD-10 codes C00-D48)					
Soft drinks, artificially sweetened					
Deaths, n	4442	264	471	219	
Multivariable model, HR (95% CI)	1 (ref)	0.92 (0.81-1.05)	1.05 (0.95-1.16)	1.06 (0.92-1.22)	0.32
Soft drinks, sugar sweetened					
Deaths, n	4765	861	1164	348	
Multivariable model, HR (95% CI)	1 (ref)	0.97 (0.90-1.04)	0.99 (0.92-1.06)	1.01 (0.90-1.13)	0.87
Circulatory diseases (ICD-10 codes I00-I99)					
Soft drinks, artificially sweetened					
Deaths, n	1832	101	183	128	
Multivariable model, HR (95% CI)	1 (ref)	0.84 (0.69-1.04)	1.08 (0.92-1.27)	1.63 (1.35-1.96)	<.0001
Soft drinks, sugar sweetened					
Deaths, n	1983	513	614	215	
Multivariable model, HR (95% CI)	1 (ref)	1.00 (0.90-1.11)	0.96 (0.87-1.06)	1.06 (0.91-1.22)	0.59
Digestive diseases (ICD-10 codes K00-K93)					
Soft drinks, artificially sweetened					
Deaths, n	282	25	38	14	
Multivariable model, HR (95% CI)	1 (ref)	1.26 (0.82-1.93)	1.54 (1.07-2.20)	1.08 (0.62-1.88)	0.62
Soft drinks, sugar sweetened					

<i>Deaths, n</i>	302	60	73	42	
Multivariable model, HR (95% CI)	1 (ref)	0.94 (0.70-1.26)	1.07 (0.82-1.41)	1.49 (1.06-2.12)	0.02
HR = hazard ratio; CI = confidence interval. ICD-10 = International Classification of Diseases, 10th Revision. Multivariable model-Cox regression using body mass index (<22; 22-<25; 25-<30; 30-<35; ≥35 kg/m ²), physical activity index (inactive; moderately inactive; moderately active; active), education status (none; primary school completed; technical/professional school; secondary school; longer education including university; or not specified), alcohol consumption (non-consumers; <5; 5-<15; 15-<30; ≥30 g/day), smoking status and intensity (never; current, 1-15 cigarettes per day; current, 16-25 cigarettes per day; current, ≥16 cigarettes per day; former, quit ≤10 years; former, quit 11-20 years; former, quit ≥20 years; current, pipe/cigar/occasional; current/former, missing; unknown), smoking duration (<10; 10-<20; 20-<30; 30-<40; ≥40 years; smoking duration unknown), ever use of contraceptive pill (yes; no; or unknown), menopausal status (premenopausal; postmenopausal; perimenopausal/unknown menopausal status; or surgical postmenopausal), ever use of menopausal hormone therapy (yes; no; or unknown), and intakes of total energy (kcal/day), red and processed meat (g/day), and fruits and vegetables (g/day), coffee (g/day), juice (g/day) (all continuous), and stratified by age (1-year categories), center, and sex. Additionally, sugar sweetened and artificially sweetened soft drinks were mutually adjusted. Italy, Spain and Sweden are excluded from the sugar-sweetened and artificially-sweetened soft drinks analyses as information on type of soft drink consumption was not collected.					

eTable 8. Multivariable Associations of Categories of Soft Drinks Consumption and All-Cause Mortality by Ascertainment of Death Method						
	<1 glass/month	1–4 glasses/month	>1–6 glasses/week	1-<2 glasses/day	≥2 glasses/day	<i>ptrend</i>
All-cause mortality						
<i>Linkage follow-up (Denmark, Italy, the Netherlands, Norway, Spain, Sweden, and UK)</i>						
Total soft drinks, HR (95% CI)	1 (ref)	0.95 (0.92-0.98)	0.97 (0.94-1.00)	1.08 (1.02-1.13)	1.15 (1.09-1.21)	<.0001
Soft drinks, artificially-sweetened, HR (95% CI)	1 (ref)	0.94 (0.90-0.98)	1.00 (0.96-1.05)	0.92 (0.75-1.12)	1.26 (1.17-1.37)	<.0001
Soft drinks, sugar-sweetened, HR (95% CI)	1 (ref)	0.91 (0.88-0.95)	0.94 (0.91-0.98)	1.01 (0.94-1.10)	1.05 (0.97-1.13)	0.51
<i>Active follow-up (France, Germany, Greece)</i>						
Total soft drinks, HR (95% CI)	1 (ref)	1.04 (0.97-1.12)	1.08 (1.01-1.15)	1.32 (1.16-1.50)	1.28 (1.07-1.53)	<.0001
Soft drinks, artificially-sweetened, HR (95% CI)	1 (ref)	0.90 (0.76-1.07)	1.15 (1.00-1.32)	1.20 (0.91-1.58)	1.22 (0.90-1.67)	0.03
Soft drinks, sugar-sweetened, HR (95% CI)	1 (ref)	1.07 (0.99-1.15)	1.07 (0.99-1.15)	1.39 (1.20-1.63)	1.37 (1.10-1.71)	<.0001
HR = hazard ratio; CI = confidence interval. ICD-10 = International Classification of Diseases, 10th Revision. Multivariable model-Cox regression using body mass index (<22; 22-<25; 25-<30; 30-<35; ≥35 kg/m ²), physical activity index (inactive; moderately inactive; moderately active; active), education status (none; primary school completed; technical/professional school; secondary school; longer education including university; or not specified), alcohol consumption (non-consumers; <5; 5-<15; 15-<30; ≥30 g/day), smoking status and intensity (never; current, 1-15 cigarettes per day; current, 16-25 cigarettes per day; current, ≥16 cigarettes per day; former, quit ≤10 years; former, quit 11-20 years; former, quit ≥20 years; current, pipe/cigar/occasional; current/former, missing; unknown), smoking duration (<10; 10-<20; 20-<30; 30-<40; ≥40 years; smoking duration unknown), ever use of contraceptive pill (yes; no; or unknown), menopausal status (premenopausal; postmenopausal; perimenopausal/unknown menopausal status; or surgical postmenopausal), ever use of menopausal hormone therapy (yes; no; or unknown), and intakes of total energy (kcal/day), red and processed meat (g/day), fruits and vegetables (g/day), coffee (g/day), and fruit and vegetable juice (g/day) (all continuous), and stratified by age (1-year categories), center, and sex. Additionally, sugar sweetened and artificially sweetened soft drinks were mutually adjusted. Italy, Spain and Sweden are excluded from the sugar-sweetened and artificially-sweetened soft drinks analyses as information on type of soft drink consumption was not collected.						

eTable 9. Multivariable Associations of Categories of Soft Drinks Consumption and Deaths Due to External Causes (ICD-10 Codes S00-Y98)

	<1 glass/month	1–4 glasses/month	>1–6 glasses/week	≥1 glass/day	<i>ptrend</i>
External causes (ICD-10 codes S00-Y98)					
Overall soft drinks					
<i>Deaths, n</i>	796	203	414	158	
Multivariable model, HR (95% CI)	1 (ref)	0.90 (0.76-1.05)	0.96 (0.84-1.09)	1.00 (0.83-1.20)	0.80
Soft drinks, artificially sweetened					
<i>Deaths, n</i>	807	91	85	26	
Multivariable model, HR (95% CI)	1 (ref)	0.86 (0.68-1.08)	0.93 (0.74-1.18)	1.05 (0.70-1.56)	0.85
Soft drinks, sugar sweetened					
<i>Deaths, n</i>	610	145	188	66	
Multivariable model, HR (95% CI)	1 (ref)	0.91 (0.75-1.10)	0.95 (0.79-1.14)	0.99 (0.75-1.31)	0.97

HR = hazard ratio; CI = confidence interval. ICD-10 = International Classification of Diseases, 10th Revision. Basic model-Cox regression with adjustment for total energy intake (kcal/day) and stratified by age (1-year categories), center, and sex. Multivariable model -Cox regression using body mass index (<22; 22-<25; 25-<30; 30-<35; ≥35 kg/m²), physical activity index (inactive; moderately inactive; moderately active; active), education status (none; primary school completed; technical/professional school; secondary school; longer education including university; or not specified), alcohol consumption (non-consumers; <5; 5-<15; 15-<30; ≥30 g/day), smoking status and intensity (never; current, 1-15 cigarettes per day; current, 16-25 cigarettes per day; current, ≥16 cigarettes per day; former, quit ≤10 years; former, quit 11-20 years; former, quit ≥20 years; current, pipe/cigar/occasional; current/former, missing; unknown), smoking duration (<10; 10-<20; 20-<30; 30-<40; ≥40 years; smoking duration unknown), ever use of contraceptive pill (yes; no; or unknown), menopausal status (premenopausal; postmenopausal; perimenopausal/unknown menopausal status; or surgical postmenopausal), ever use of menopausal hormone therapy (yes; no; or unknown), and intakes of total energy (kcal/day), red and processed meat (g/day), fruits and vegetables (g/day), coffee (g/day), and fruit and vegetable juice (g/day) (all continuous), and stratified by age (1-year categories), center, and sex. Additionally, sugar sweetened and artificially sweetened soft drinks were mutually adjusted. Italy, Spain and Sweden are excluded from the sugar-sweetened and artificially-sweetened soft drinks analyses as information on type of soft drink consumption was not collected.