

## Supplementary Online Content

Yang JJ, Yu D, Xiang Y-B, et al. Association of dietary fiber and yogurt consumption with lung cancer risk: a pooled analysis. *JAMA Oncol*. Published online October 24, 2019. doi:10.1001/jamaoncol.2019.4107

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

## **eAppendix. Missing Data Imputation for Covariates**

Among selected covariates, we had no missing data on age, gender, smoking status, and total energy intake. The missing proportions of other covariates were all <3% in the IWHS, SCCS, SMHS, and SWHS, and mostly <3%, but some were 3–10%, in the AARP, HPFS, NHS, PLCO, VITAL, and EPIC. Missing covariates were imputed separately in each cohort considering different study protocols and characteristics of participants across cohorts. If the proportion of missing covariates was <3%, missing was replaced by sex-specific median (for continuous variables) and mode (for categorical variables) values of the non-missing data. If missing proportion was  $\geq 3\%$  (including education level, body mass index, physical activity, or smoking duration/intensity in the above-mentioned cohorts), we conducted imputation by chained equations method using the SAS PROC MI procedure, fully conditional specification (FCS) statement. Only participants with complete information on outcome variables, age, gender, smoking status, and total energy intake were included in building of the imputation models. Variables in the imputation models included lung cancer status, total follow-up time, intakes of total energy and macronutrients, and all other referenced covariates included in the final Cox model. Linear and logistic regression models were fitted for continuous and categorical variables, respectively. After imputation, one single complete dataset was created within each cohort and used to estimate the cohort-specific results.

\*Abbreviations: AARP, National Health Institute-AARP Diet and Health Study; HPFS, Health Professionals Follow-up Study; NHS, Nurses' Health Study; IWHS, Iowa Women's Health Study; PLCO, Prostate, Lung, Colorectal and Ovarian Cancer Screening Trial; SCCS, Southern Community Cohort Study; VITAL, VITamins And Lifestyle Study; EPIC, European Prospective Investigation into Cancer & Nutrition; SMHS, Shanghai Men's Health Study; SWHS, Shanghai Women's Health Study

**eTable 1. Characteristics of the Participating Cohort Studies**

Cohort	Country	Study Enrollment	Sex	No. of Participants (%) <sup>a</sup>	Follow-up Years <sup>b</sup>	Age at Baseline <sup>c</sup>	No. of Cases (%)	Years to Diagnosis <sup>d</sup>	% of Ever Smokers	Total Fiber Intake (g/d) <sup>e</sup>	% of Yogurt Consumed	Yogurt Intake (g/d) <sup>e,f</sup>
AARP	USA	1995-1997	Men	276,118 (19.1)	8.5	50-71	5,051 (26.8)	4.4	73.9	18.3 (14.5-22.9)	45.3	5.1 (1.8-20.2)
			Women	189,193 (13.1)	8.6	50-71	3,013 (16.0)	4.6	52.7	16.1 (12.8-20.0)	67.6	12.3 (3.3-41.9)
HPFS	USA	1986-1987	Men	45,320 (3.1)	20.9	32-79	930 (4.9)	11.1	56.3	19.2 (15.5-23.4)	36.5	26.7 (17.1-61.1)
NHS	USA	1984-1984	Women	75,937 (5.3)	24.4	37-65	1,907 (10.1)	14.3	56.1	16.2 (13.5-19.6)	42.3	27.7 (16.2-63.5)
IWHS	USA	1986-1986	Women	33,574 (2.3)	19.7	52-71	955 (5.1)	11.5	34.0	18.4 (15.3-22.1)	23.3	23.2 (16.5-46.2)
PLCO	USA	1993-2004	Men	50,659 (3.5)	7.5	54-83	864 (4.6)	4.5	70.3	20.7 (16.5-25.6)	56.3	5.1 (1.9-17.5)
			Women	52,627 (3.6)	7.8	53-82	609 (3.2)	4.6	42.8	17.7 (14.3-21.7)	76.2	11.2 (3.3-40.5)
SCCS	USA	2002-2009	Men	27,464 (1.9)	4.3	40-80	325 (1.7)	2.5	80.4	20.8 (16.5-25.8)	47.5	2.1 (1.5-13.4)
			Women	40,489 (2.8)	4.4	40-80	291 (1.5)	2.5	54.9	17.0 (13.6-21.3)	62.7	6.0 (1.8-24.2)
VITAL	USA	2000-2002	Men	31,792 (2.2)	8.0	50-76	468 (2.5)	3.8	66.7	20.3 (16.6-24.8)	38.1	25.1 (10.5-70.7)
			Women	33,898 (2.3)	7.9	50-76	388 (2.1)	4.3	43.9	14.5 (11.6-18.0)	61.2	33.6 (13.4-81.5)
EPIC	Europe	1991-2001	Men	136,607 (9.4)	9.8	19-97	1,287 (6.8)	5.5	66.4	23.2 (19.4-27.5)	77.1	39.2 (11.0-103.8)
			Women	320,066 (22.1)	9.6	19-98	1,191 (6.3)	5.9	43.0	21.1 (17.9-24.8)	81.4	52.6 (20.8-109.2)
SMHS	China	2001-2006	Men	60,028 (4.2)	8.3	40-75	776 (4.1)	4.7	69.6	10.8 (9.0-13.0)	-	-
SWHS	China	1996-2000	Women	72,078 (5.0)	14.1	40-70	767 (4.1)	8.7	2.7	10.3 (8.5-12.5)	-	-
				1,445,850 (100)	8.6	19-98	18,822 (100)	5.4	54.9	18.4 (14.1-23.1)	62.2	23.3 (5.7-73.4)

Abbreviations: AARP, National Health Institute-AARP Diet and Health Study; HPFS, Health Professionals Follow-up Study; NHS, Nurses' Health Study; IWHS, Iowa Women's Health Study; PLCO, Prostate, Lung, Colorectal and Ovarian Cancer Screening Trial; SCCS, Southern Community Cohort Study; VITAL, VITamins And Lifestyle Study; EPIC, European Prospective Investigation into Cancer & Nutrition; SMHS, Shanghai Men's Health Study; SWHS, Shanghai Women's Health Study

- a. Including only participants who were eligible for the current pooled analysis
- b. Median years of the time interval from two years after study entry to the date of the last follow-up (date of diagnosis of any cancer, death, end of follow-up, or follow-up loss, whichever came first)
- c. Age ranges at baseline (minimum to maximum)
- d. Time-to-lung cancer defined by median years of the time interval from two years after study entry to the date of diagnosis among lung cancer cases
- e. Energy-adjusted median intake (interquartile range) by the residual method
- f. Estimated among yogurt consumers; participants from the SMHS/SWHS and those having invalid data on yogurt consumption were not included in the analysis

**eTable 2. Baseline Characteristics of Lung Cancer Cases**

	Lung Cancer Cases, N=18,822	
	Men, n=9,701	Women, n=9,121
<b>Age, years</b>	62.3	59.4
<b>Race/ethnicity, %</b>		
Whites	86.7	86.9
Blacks	4.5	4.2
Asians <sup>a</sup>	8.9	8.9
<b>University degree or above, %</b>	32.9	18.3
<b>Body mass index, kg/m<sup>2</sup></b>	26.3	25.4
<b>Diabetes, %</b>	9.4	5.1
<b>Family history of lung cancer, %</b>	3.3	2.9
<b>Smoking status, %</b>		
Never smoker	5.8	19.1
Former smoker	49.2	28.8
Current smoker	45.0	52.1
<b>Pack-years among ever smokers <sup>b</sup></b>	48.0	38.5
<b>Alcohol intake, g/day</b>	22.3	8.7
<b>Low-level physical activity <sup>c</sup>, %</b>	30.9	28.3
<b>Menopause, %</b>	-	88.9
<b>Dietary intakes <sup>d</sup></b>		
Energy, kcal/day	2,175	1,693
Total fiber, g/day	18.1	16.0
Yogurt, g/day	12.3	23.9
Saturated fat, g/day	23.1	19.7
Polyunsaturated fat, g/day	14.2	11.6

Data are mean values for continuous variables or proportions (%) for categorical variables.

- a. For fiber intake, included were Asian participants in the US and Chinese cohorts; for yogurt consumption, only Asian participants in the US cohorts were included. No data were available on yogurt consumption in the SMHS and SWHS
- b. Calculated by the equation: (no. of cigarettes smoked per day x no. of years smoked)/20, among former and current smokers
- c. The lowest tertile of total physical activity measured by hours or metabolic equivalent hours
- d. Energy-adjusted mean intake per day using the residual method

**eTable 3. Hazard Ratios (95% CIs)<sup>a</sup> of Lung Cancer by Dietary Fiber Intake and Yogurt Consumption in Sequential Adjustment Models**

	Total Fiber Intake <sup>b</sup>						Yogurt Consumption <sup>c</sup>			
	Q1	Q2	Q3	Q4	Q5	P trend	None	Low	High	P trend
<b>Total study populations</b>										
No. Lung cancer cases	5,686	4,603	3,440	2,809	2,284		9,897	4,326	2,898	
Model 1 <sup>d</sup>	1 (ref.)	0.72 (0.65-0.79)	0.54 (0.49-0.60)	0.44 (0.41-0.46)	0.38 (0.34-0.41)	<0.001	1 (ref.)	0.67 (0.60-0.75)	0.54 (0.49-0.60)	<0.001
Model 2 <sup>e</sup>	1 (ref.)	0.76 (0.69-0.83)	0.60 (0.53-0.66)	0.50 (0.46-0.54)	0.44 (0.39-0.49)	<0.001	1 (ref.)	0.73 (0.66-0.81)	0.62 (0.58-0.67)	<0.001
Model 3 <sup>f</sup>	1 (ref.)	0.91 (0.85-0.97)	0.79 (0.74-0.85)	0.76 (0.71-0.80)	0.72 (0.66-0.79)	<0.001	1 (ref.)	0.83 (0.78-0.89)	0.77 (0.71-0.82)	<0.001
Model 4 <sup>g</sup>	1 (ref.)	0.96 (0.90-1.01)	0.87 (0.81-0.94)	0.85 (0.80-0.90)	0.83 (0.76-0.91)	<0.001	1 (ref.)	0.85 (0.81-0.90)	0.81 (0.76-0.87)	<0.001
<b>Men</b>										
No. Lung cancer cases	2,687	2,288	1,898	1,540	1,288		5,621	1,897	1,293	
Model 1 <sup>d</sup>	1 (ref.)	0.75 (0.65-0.86)	0.62 (0.52-0.74)	0.44 (0.41-0.48)	0.39 (0.32-0.46)	<0.001	1 (ref.)	0.64 (0.55-0.75)	0.50 (0.45-0.56)	<0.001
Model 2 <sup>e</sup>	1 (ref.)	0.79 (0.69-0.90)	0.67 (0.57-0.79)	0.51 (0.45-0.57)	0.47 (0.38-0.59)	<0.001	1 (ref.)	0.72 (0.64-0.81)	0.59 (0.55-0.63)	<0.001
Model 3 <sup>f</sup>	1 (ref.)	0.91 (0.83-1.00)	0.85 (0.74-0.97)	0.73 (0.66-0.81)	0.73 (0.60-0.87)	<0.001	1 (ref.)	0.80 (0.76-0.84)	0.72 (0.67-0.77)	<0.001
Model 4 <sup>g</sup>	1 (ref.)	0.97 (0.88-1.07)	0.94 (0.83-1.08)	0.83 (0.74-0.94)	0.84 (0.71-1.00)	0.001	1 (ref.)	0.83 (0.79-0.88)	0.76 (0.71-0.82)	<0.001
<b>Women</b>										
No. Lung cancer cases	2,999	2,315	1,542	1,269	996		4,276	2,429	1,605	
Model 1 <sup>d</sup>	1 (ref.)	0.69 (0.59-0.80)	0.48 (0.43-0.55)	0.43 (0.39-0.47)	0.38 (0.34-0.42)	<0.001	1 (ref.)	0.69 (0.58-0.84)	0.58 (0.49-0.68)	<0.001
Model 2 <sup>e</sup>	1 (ref.)	0.74 (0.64-0.85)	0.54 (0.47-0.62)	0.49 (0.43-0.55)	0.42 (0.36-0.48)	<0.001	1 (ref.)	0.75 (0.63-0.90)	0.65 (0.57-0.74)	<0.001
Model 3 <sup>f</sup>	1 (ref.)	0.91 (0.83-0.99)	0.76 (0.70-0.82)	0.78 (0.72-0.83)	0.74 (0.68-0.81)	<0.001	1 (ref.)	0.87 (0.77-0.99)	0.80 (0.72-0.89)	<0.001
Model 4 <sup>g</sup>	1 (ref.)	0.95 (0.88-1.03)	0.83 (0.78-0.89)	0.87 (0.80-0.94)	0.84 (0.77-0.93)	<0.001	1 (ref.)	0.89 (0.80-0.98)	0.86 (0.78-0.95)	0.002
<b>Whites</b>										
No. Lung cancer cases	4,193	4,085	3,148	2,634	2,114		9,254	3,973	2,797	
Model 1 <sup>d</sup>	1 (ref.)	0.65 (0.61-0.69)	0.49 (0.45-0.53)	0.43 (0.41-0.46)	0.36 (0.33-0.40)	<0.001	1 (ref.)	0.66 (0.59-0.74)	0.54 (0.49-0.60)	<0.001
Model 2 <sup>e</sup>	1 (ref.)	0.70 (0.66-0.75)	0.54 (0.49-0.60)	0.49 (0.44-0.53)	0.43 (0.38-0.48)	<0.001	1 (ref.)	0.72 (0.65-0.81)	0.62 (0.57-0.67)	<0.001
Model 3 <sup>f</sup>	1 (ref.)	0.87 (0.83-0.92)	0.76 (0.70-0.83)	0.75 (0.70-0.80)	0.72 (0.65-0.80)	<0.001	1 (ref.)	0.83 (0.77-0.89)	0.77 (0.72-0.82)	<0.001
Model 4 <sup>g</sup>	1 (ref.)	0.94 (0.88-0.99)	0.85 (0.78-0.93)	0.85 (0.79-0.91)	0.83 (0.75-0.92)	<0.001	1 (ref.)	0.85 (0.81-0.90)	0.82 (0.77-0.88)	<0.001
<b>Blacks</b>										
No. Lung cancer cases	194	191	183	123	116		484	253	65	
Model 1 <sup>d</sup>	1 (ref.)	0.82 (0.67-1.00)	0.84 (0.68-1.03)	0.59 (0.46-0.74)	0.49 (0.38-0.62)	<0.001	1 (ref.)	0.67 (0.57-0.78)	0.61 (0.46-0.79)	0.005
Model 2 <sup>e</sup>	1 (ref.)	0.84 (0.68-1.04)	0.89 (0.71-1.11)	0.65 (0.50-0.83)	0.54 (0.41-0.71)	<0.001	1 (ref.)	0.72 (0.58-0.89)	0.68 (0.52-0.90)	0.05
Model 3 <sup>f</sup>	1 (ref.)	0.95 (0.76-1.17)	1.09 (0.87-1.37)	0.82 (0.64-1.06)	0.78 (0.60-1.03)	0.07	1 (ref.)	0.80 (0.68-0.94)	0.81 (0.61-1.06)	0.39
Model 4 <sup>g</sup>	1 (ref.)	0.99 (0.80-1.24)	1.18 (0.94-1.48)	0.90 (0.69-1.16)	0.85 (0.65-1.12)	0.26	1 (ref.)	0.82 (0.69-0.96)	0.83 (0.63-1.10)	0.51
<b>Asians</b>										
No. Lung cancer cases	1,243	291	73	28	21		60	37	14	
Model 1 <sup>d</sup>	1 (ref.)	1.00 (0.88-1.14)	0.89 (0.69-1.15)	0.60 (0.38-0.96)	0.64 (0.36-1.12)	0.04	1 (ref.)	0.90 (0.56-1.43)	0.67 (0.36-1.26)	0.37
Model 2 <sup>e</sup>	1 (ref.)	1.06 (0.92-1.21)	0.90 (0.68-1.20)	0.58 (0.33-1.01)	0.62 (0.34-1.14)	0.27	1 (ref.)	0.90 (0.55-1.47)	0.59 (0.30-1.16)	0.20
Model 3 <sup>f</sup>	1 (ref.)	1.10 (0.96-1.26)	0.98 (0.76-1.27)	0.68 (0.40-1.14)	0.86 (0.46-1.60)	0.94	1 (ref.)	1.00 (0.57-1.76)	0.71 (0.36-1.41)	0.37
Model 4 <sup>g</sup>	1 (ref.)	1.10 (0.96-1.26)	0.99 (0.77-1.29)	0.70 (0.41-1.18)	0.88 (0.47-1.65)	0.99	1 (ref.)	1.05 (0.63-1.75)	0.73 (0.37-1.46)	0.46
<b>Adenocarcinoma</b>										
No. Lung cancer cases	2,035	1,719	1,293	1,060	897		3,446	1,718	1,149	
Model 1 <sup>d</sup>	1 (ref.)	0.79 (0.70-0.90)	0.59 (0.53-0.66)	0.54 (0.48-0.60)	0.47 (0.42-0.54)	<0.001	1 (ref.)	0.75 (0.67-0.83)	0.62 (0.56-0.69)	<0.001

Model 2 <sup>e</sup>	1 (ref.)	0.82 (0.73-0.92)	0.63 (0.56-0.71)	0.56 (0.51-0.61)	0.51 (0.44-0.59)	<0.001	1 (ref.)	0.79 (0.72-0.86)	0.68 (0.63-0.73)	<0.001
Model 3 <sup>f</sup>	1 (ref.)	0.94 (0.86-1.04)	0.81 (0.74-0.89)	0.77 (0.71-0.85)	0.76 (0.67-0.87)	<0.001	1 (ref.)	0.87 (0.81-0.92)	0.80 (0.74-0.87)	<0.001
Model 4 <sup>g</sup>	1 (ref.)	0.99 (0.90-1.09)	0.88 (0.81-0.96)	0.86 (0.78-0.94)	0.86 (0.75-0.99)	<0.001	1 (ref.)	0.90 (0.84-0.96)	0.85 (0.79-0.92)	0.001
<b>Squamous cell carcinoma</b>										
No. Lung cancer cases	972	814	589	478	374		1,879	740	449	
Model 1 <sup>d</sup>	1 (ref.)	0.60 (0.54-0.68)	0.43 (0.36-0.51)	0.33 (0.28-0.38)	0.27 (0.22-0.33)	<0.001	1 (ref.)	0.63 (0.54-0.74)	0.47 (0.40-0.54)	<0.001
Model 2 <sup>e</sup>	1 (ref.)	0.66 (0.60-0.73)	0.49 (0.41-0.58)	0.39 (0.33-0.47)	0.35 (0.28-0.44)	<0.001	1 (ref.)	0.71 (0.63-0.81)	0.55 (0.49-0.63)	<0.001
Model 3 <sup>f</sup>	1 (ref.)	0.83 (0.75-0.92)	0.70 (0.62-0.80)	0.66 (0.58-0.75)	0.62 (0.51-0.76)	<0.001	1 (ref.)	0.81 (0.74-0.90)	0.70 (0.62-0.78)	<0.001
Model 4 <sup>g</sup>	1 (ref.)	0.90 (0.81-0.99)	0.79 (0.69-0.89)	0.76 (0.67-0.86)	0.74 (0.61-0.89)	<0.001	1 (ref.)	0.84 (0.77-0.92)	0.76 (0.67-0.86)	0.007
<b>Small cell carcinoma</b>										
No. Lung cancer cases	763	636	453	372	273		1,458	597	355	
Model 1 <sup>d</sup>	1 (ref.)	0.60 (0.54-0.66)	0.43 (0.35-0.53)	0.36 (0.30-0.43)	0.31 (0.22-0.43)	<0.001	1 (ref.)	0.62 (0.48-0.81)	0.46 (0.37-0.58)	<0.001
Model 2 <sup>e</sup>	1 (ref.)	0.67 (0.60-0.74)	0.51 (0.41-0.63)	0.44 (0.38-0.52)	0.40 (0.28-0.56)	<0.001	1 (ref.)	0.71 (0.55-0.91)	0.56 (0.47-0.67)	<0.001
Model 3 <sup>f</sup>	1 (ref.)	0.89 (0.80-0.99)	0.78 (0.66-0.92)	0.78 (0.68-0.91)	0.78 (0.56-1.07)	0.01	1 (ref.)	0.84 (0.69-1.03)	0.74 (0.64-0.86)	<0.001
Model 4 <sup>g</sup>	1 (ref.)	0.95 (0.85-1.06)	0.86 (0.73-1.02)	0.89 (0.77-1.03)	0.90 (0.66-1.24)	0.21	1 (ref.)	0.87 (0.71-1.05)	0.79 (0.68-0.92)	0.001

Participants from the Shanghai Men's and Women's Health Studies were included in the fiber-lung cancer analysis only. No data were available on yogurt consumption in these 2 cohorts.

- a. Estimated by random-effects meta-analysis
- b. Based on the quintiles of total dietary fiber intake among all study participants
- c. Defined as none (0 g/day), low ( $\leq$  sex-specific median intake), and high ( $>$ sex-specific median intake); participants from the SMHS/SWHS and those having invalid data on yogurt consumption were not included in the analysis
- d. Model 1, the minimally adjusted model: Stratified by birth year and enrollment year; and adjusted for age, total energy, sex, and race/ethnicity
- e. Model 2, adjusted for all covariates except smoking variables: Stratified by birth year and enrollment year; and adjusted for age, total energy, sex, race/ethnicity, education, obesity status, diabetes, family history of lung cancer, physical activity level, menopausal status in women, and intake of saturated and polyunsaturated fat
- f. Model 3 adjusted for all other covariates and smoking status: Stratified by birth year and enrollment year; and adjusted for age, total energy, smoking status, sex, race/ethnicity, education, obesity status, diabetes, family history of lung cancer, physical activity level, menopausal status in women, and intake of saturated and polyunsaturated fat
- g. Model 4, adjusted for all other covariates, smoking status, and smoking pack-years: Stratified by birth year and enrollment year; and adjusted for age, total energy, smoking status, smoking pack-years, sex, race/ethnicity, education, obesity status, diabetes, family history of lung cancer, physical activity level, menopausal status in women, and intake of saturated and polyunsaturated fat

**eTable 4. Hazard Ratios (95% CIs)<sup>a</sup> of Lung Cancer by Dietary Fiber Intake and Yogurt Consumption: Using the Common Cut-Points of Fiber and Yogurt Intakes Across Cohorts**

	Total Fiber Intake <sup>b</sup>						Yogurt Consumption <sup>c</sup>			
	Q1	Q2	Q3	Q4	Q5	P trend	None	Low	High	P trend
<b>Total study populations</b>										
No. Lung cancer cases	5,644	4,505	3,381	2,871	2,421		9,897	4,394	2,830	
HR (95% CI) <sup>d</sup>	1 (ref.)	0.94 (0.89-1.00)	0.86 (0.80-0.93)	0.86 (0.80-0.92)	0.82 (0.75-0.89)	<0.001	1 (ref.)	0.86 (0.81-0.90)	0.81 (0.76-0.87)	<0.001
<b>Men</b>										
No. Lung cancer cases	2,451	2,152	1,826	1,633	1,639		5,621	2,216	974	
HR (95% CI) <sup>d</sup>	1 (ref.)	0.96 (0.87-1.05)	0.93 (0.81-1.07)	0.85 (0.75-0.96)	0.82 (0.71-0.95)	<0.001	1 (ref.)	0.82 (0.78-0.87)	0.76 (0.70-0.82)	<0.001
<b>Women</b>										
No. Cases	3,193	2,353	1,555	1,238	782		4,276	2,178	1,856	
HR (95% CI) <sup>d</sup>	1 (ref.)	0.93 (0.85-1.02)	0.83 (0.76-0.90)	0.87 (0.80-0.96)	0.82 (0.73-0.92)	<0.001	1 (ref.)	0.90 (0.81-1.00)	0.85 (0.78-0.94)	0.004
<b>Whites</b>										
No. Lung cancer cases	4,161	3,982	3,096	2,690	2,245		9,254	4,032	2,738	
HR (95% CI) <sup>d</sup>	1 (ref.)	0.92 (0.86-0.97)	0.84 (0.77-0.91)	0.86 (0.79-0.92)	0.81 (0.74-0.90)	<0.001	1 (ref.)	0.85 (0.81-0.90)	0.82 (0.77-0.88)	<0.001
<b>Blacks</b>										
No. Lung cancer cases	187	192	180	123	125		484	261	57	
HR (95% CI) <sup>d</sup>	1 (ref.)	1.03 (0.83-1.29)	1.22 (0.97-1.53)	0.95 (0.73-1.23)	0.89 (0.67-1.18)	0.31	1 (ref.)	0.83 (0.70-0.98)	0.78 (0.58-1.05)	0.20
<b>Asians</b>										
No. Lung cancer cases	1,244	288	71	33	20		60	37	14	
HR (95% CI) <sup>d</sup>	1 (ref.)	1.05 (0.91-1.20)	0.96 (0.74-1.25)	0.80 (0.47-1.36)	0.83 (0.43-1.60)	0.54	1 (ref.)	0.90 (0.55-1.50)	0.91 (0.45-1.84)	0.91
<b>Adenocarcinoma</b>										
No. Lung cancer cases	2,048	1,684	1,272	1,081	919		3,446	1,716	1,151	
HR (95% CI) <sup>d</sup>	1 (ref.)	0.97 (0.88-1.06)	0.87 (0.80-0.94)	0.87 (0.79-0.96)	0.84 (0.74-0.96)	<0.001	1 (ref.)	0.90 (0.84-0.95)	0.85 (0.79-0.92)	0.001
<b>Squamous cell carcinoma</b>										
No. Lung cancer cases	936	796	573	510	412		1,879	786	403	
HR (95% CI) <sup>d</sup>	1 (ref.)	0.90 (0.81-0.99)	0.79 (0.70-0.89)	0.81 (0.71-0.92)	0.73 (0.61-0.86)	<0.001	1 (ref.)	0.87 (0.78-0.98)	0.72 (0.63-0.82)	<0.001
<b>Small cell carcinoma</b>										
No. Lung cancer cases	754	624	455	365	299		1,458	593	359	
HR (95% CI) <sup>d</sup>	1 (ref.)	0.93 (0.83-1.04)	0.88 (0.73-1.05)	0.87 (0.71-1.05)	0.93 (0.70-1.23)	0.31	1 (ref.)	0.86 (0.71-1.05)	0.80 (0.70-0.92)	0.001

Participants from the Shanghai Men's and Women's Health Studies were included in the fiber-lung cancer analysis only. No data were available on yogurt consumption in these 2 cohorts.

a. Estimated by random-effects meta-analysis

b. Based on the quintiles of total dietary fiber intake among all study participants

- c. Defined as none (0 g/day), low ( $\leq$  the median intake among all study participants), and high ( $>$  the median intake among all study participants); participants from the SMHS/SWHS and those having invalid data on yogurt consumption were not included in the analysis
- d. Stratified by birth year and enrollment year; and adjusted for age, total energy, smoking status, smoking pack-years, sex, race/ethnicity, education, obesity status, diabetes, family history of lung cancer, physical activity level, menopausal status in women, and intake of saturated and polyunsaturated fat



**eTable 5. Hazard ratios (95% CIs)<sup>a</sup> of Lung Cancer by Dietary Fiber Intake and Yogurt Consumption: Using the Cohort- and Sex-Specific Cut-Points of Fiber and Yogurt Intakes**

	Total Fiber Intake <sup>b</sup>						Yogurt Consumption <sup>c</sup>			
	Q1	Q2	Q3	Q4	Q5	P trend	None	Low	High	P trend
<b>Total study populations</b>										
No. Lung cancer cases	5,571	3,980	3,425	3,060	2,786		9,897	3,920	3,304	
HR (95% CI) <sup>d</sup>	1 (ref.)	0.93 (0.89-0.97)	0.90 (0.85-0.96)	0.87 (0.83-0.91)	0.88 (0.81-0.96)	<0.001	1 (ref.)	0.87 (0.82-0.92)	0.81 (0.76-0.86)	<0.001
<b>Men</b>										
No. Lung cancer cases	2,848	2,105	1,812	1,541	1,395		5,621	1,812	1,378	
HR (95% CI) <sup>d</sup>	1 (ref.)	0.94 (0.89-1.00)	0.91 (0.82-1.02)	0.84 (0.78-0.89)	0.86 (0.75-0.98)	0.001	1 (ref.)	0.84 (0.80-0.89)	0.76 (0.72-0.81)	0.002
<b>Women</b>										
No. Lung cancer cases	2,723	1,875	1,613	1,519	1,391		4,276	2,108	1,926	
HR (95% CI) <sup>d</sup>	1 (ref.)	0.91 (0.86-0.97)	0.89 (0.83-0.96)	0.91 (0.85-0.97)	0.91 (0.81-1.02)	0.04	1 (ref.)	0.89 (0.80-0.99)	0.86 (0.79-0.94)	0.009
<b>Whites</b>										
No. Lung cancer cases	4,912	3,444	2,931	2,603	2,284		9,254	3,646	3,124	
HR (95% CI) <sup>d</sup>	1 (ref.)	0.92 (0.87-0.97)	0.90 (0.84-0.96)	0.87 (0.82-0.91)	0.85 (0.78-0.92)	<0.001	1 (ref.)	0.86 (0.81-0.92)	0.81 (0.77-0.87)	<0.001
<b>Blacks</b>										
No. Lung cancer cases	224	161	156	139	127		484	192	126	
HR (95% CI) <sup>d</sup>	1 (ref.)	0.97 (0.79-1.21)	1.05 (0.84-1.32)	0.96 (0.76-1.21)	0.97 (0.75-1.24)	0.92	1 (ref.)	0.81 (0.63-1.04)	0.84 (0.68-1.04)	0.61
<b>Asians</b>										
No. Lung cancer cases	378	341	311	290	336		60	33	18	
HR (95% CI) <sup>d</sup>	1 (ref.)	1.01 (0.87-1.17)	0.96 (0.82-1.12)	0.88 (0.71-1.09)	1.04 (0.84-1.28)	0.96	1 (ref.)	1.16 (0.70-1.92)	0.62 (0.32-1.19)	0.37
<b>Adenocarcinoma</b>										
No. Lung cancer cases	1,912	1,465	1,293	1,220	1,114		3,446	1,527	1,340	
HR (95% CI) <sup>d</sup>	1 (ref.)	0.93 (0.87-1.00)	0.89 (0.82-0.95)	0.88 (0.81-0.95)	0.86 (0.76-0.96)	0.001	1 (ref.)	0.90 (0.85-0.96)	0.85 (0.79-0.91)	0.004
<b>Squamous cell carcinoma</b>										
No. Lung cancer cases	1,072	687	554	514	400		1,879	671	518	
HR (95% CI) <sup>d</sup>	1 (ref.)	0.88 (0.79-0.97)	0.81 (0.73-0.90)	0.86 (0.76-0.96)	0.77 (0.67-0.89)	<0.001	1 (ref.)	0.84 (0.76-0.93)	0.78 (0.68-0.89)	0.007
<b>Small cell carcinoma</b>										
No. Lung cancer cases	833	543	446	357	318		1,458	521	431	
HR (95% CI) <sup>d</sup>	1 (ref.)	0.94 (0.84-1.05)	0.93 (0.83-1.05)	0.86 (0.76-0.99)	0.94 (0.75-1.16)	0.47	1 (ref.)	0.84 (0.70-1.01)	0.82 (0.72-0.92)	0.05

Participants from the Shanghai Men's and Women's Health Studies were included in the fiber-lung cancer analysis only. No data were available on yogurt consumption in these 2 cohorts.

a. Estimated by random-effects meta-analysis

b. Based on the cohort- and sex-specific quintiles of total dietary fiber intake

- c. Defined as none (0 g/day), low ( $\leq$  cohort- and sex-specific median intake of yogurt), and high ( $>$  cohort- and sex-specific median intake of yogurt); participants from the SMHS/SWHS and those having invalid data on yogurt consumption were not included in the analysis
- d. Stratified by birth year and enrollment year; and adjusted for age, total energy, smoking status, smoking pack-years, sex, race/ethnicity, education, obesity status, diabetes, family history of lung cancer, physical activity level, menopausal status in women, and intake of saturated and polyunsaturated fat

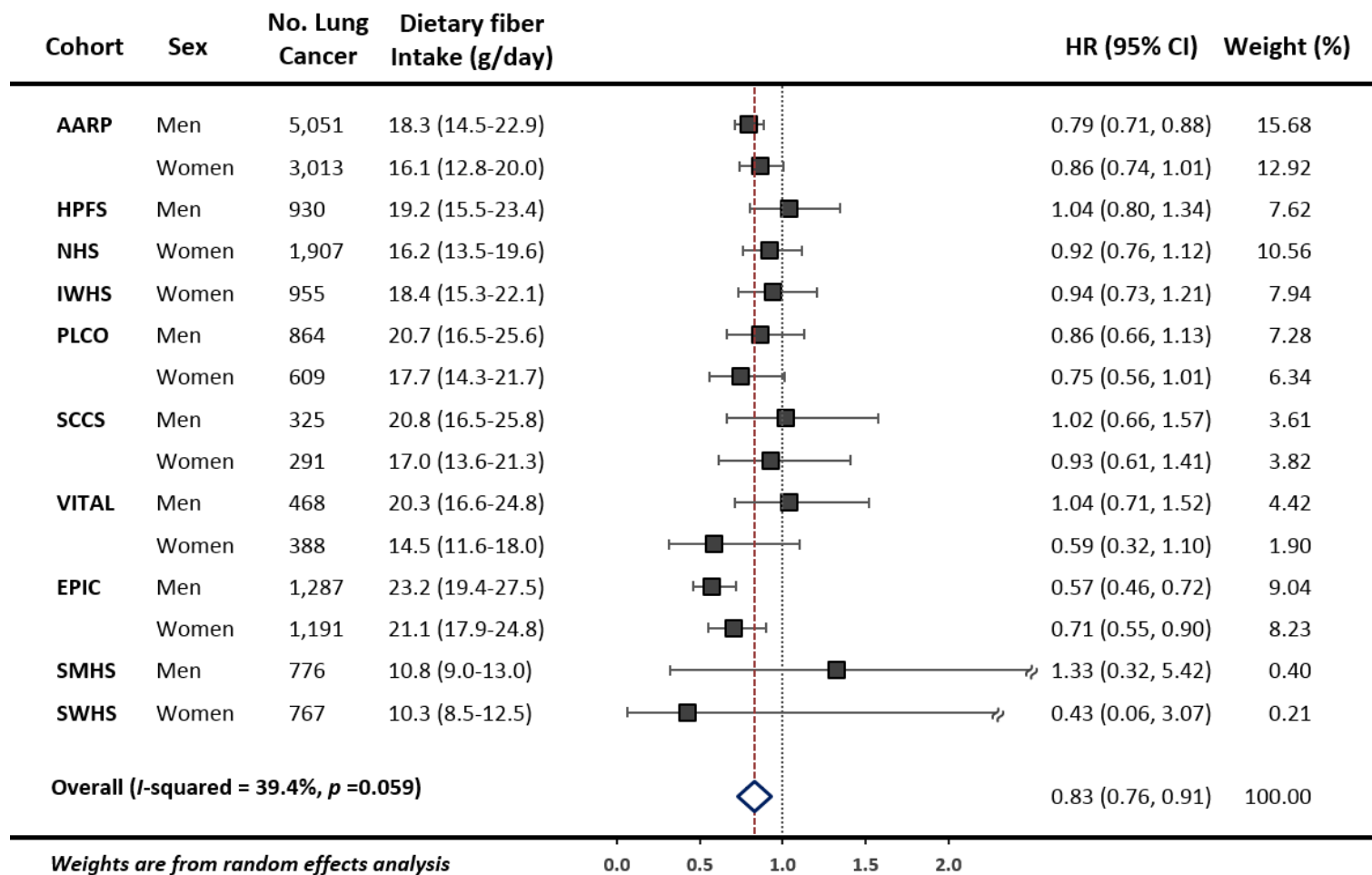
**eTable 6. Hazard ratios (95% CIs) of Lung Cancer by Dietary Fiber Intake and Yogurt Consumption: Sensitivity Analyses Among the Total Study Population**

	Total Fiber Intake <sup>a</sup>						Yogurt Consumption <sup>b</sup>			
	Q1	Q2	Q3	Q4	Q5	P trend	None	Low	High	P trend
<b>Fixed-effects meta-analysis</b>										
No. Lung cancer cases	5,686	4,603	3,440	2,809	2,284		9,897	4,326	2,898	
HR (95% CI) <sup>c</sup>	1 (ref.)	0.95 (0.91-0.99)	0.87 (0.83-0.91)	0.85 (0.80-0.90)	0.82 (0.77-0.88)	<0.001	1 (ref.)	0.85 (0.81-0.88)	0.82 (0.78-0.86)	<0.001
<b>One stage individual participant data pooled analysis <sup>d</sup></b>										
No. Lung cancer cases	5,686	4,603	3,440	2,809	2,284		9,897	4,326	2,898	
HR (95% CI) <sup>c</sup>	1 (ref.)	0.94 (0.90-0.98)	0.87 (0.83-0.91)	0.84 (0.80-0.89)	0.81 (0.76-0.85)	<0.001	1 (ref.)	0.84 (0.81-0.88)	0.81 (0.77-0.85)	<0.001
<b>Density method for total energy adjustment <sup>e</sup></b>										
No. Lung cancer cases	5,403	4,165	3,500	3,021	2,733		9,897	4,333	2,891	
HR (95% CI) <sup>c</sup>	1 (ref.)	0.93 (0.88-0.98)	0.91 (0.86-0.97)	0.86 (0.81-0.92)	0.84 (0.76-0.94)	<0.001	1 (ref.)	0.86 (0.82-0.90)	0.82 (0.76-0.88)	<0.001
<b>Alternative adjustment <sup>f</sup>: Residual method</b>										
No. Lung cancer cases	5,686	4,603	3,440	2,809	2,284		9,897	4,326	2,898	
HR (95% CI) <sup>g</sup>	1 (ref.)	0.94 (0.89-1.00)	0.86 (0.80-0.93)	0.82 (0.78-0.87)	0.80 (0.74-0.85)	<0.001	1 (ref.)	0.86 (0.81-0.90)	0.83 (0.78-0.89)	<0.001

Participants from the Shanghai Men's and Women's Health Studies were included in the fiber-lung cancer analysis only. No data were available on yogurt consumption in these 2 cohorts.

- a. Based on the sex-specific quintiles of total dietary fiber intake
- b. Defined as none (0 g/day), low ( $\leq$  sex-specific median intake), and high ( $>$ sex-specific median intake)
- c. Stratified by birth year and enrollment year; and adjusted for age, total energy, smoking status, smoking pack-years, gender, race/ethnicity, education, obesity status, diabetes, family history of lung cancer, physical activity level, menopausal status in women, and intake of saturated and polyunsaturated fat
- d. Analyzed all individual participant data from all participating cohort studies in a single step with a stratification by cohorts, assuming fixed effects
- e. Per 2,500kcal/day for men and 2,000 kcal/day for women; Random-effects meta-analysis based on the sex-specific quintiles
- f. Adjustment for red meat and total vegetable consumption instead of saturated and polyunsaturated fat intake
- g. Stratified by birth year and enrollment year; and adjusted for age, total energy, smoking status, smoking pack-years, gender, race/ethnicity, education, obesity status, diabetes, family history of lung cancer, physical activity level, menopausal status in women, and red meat and total vegetable consumption

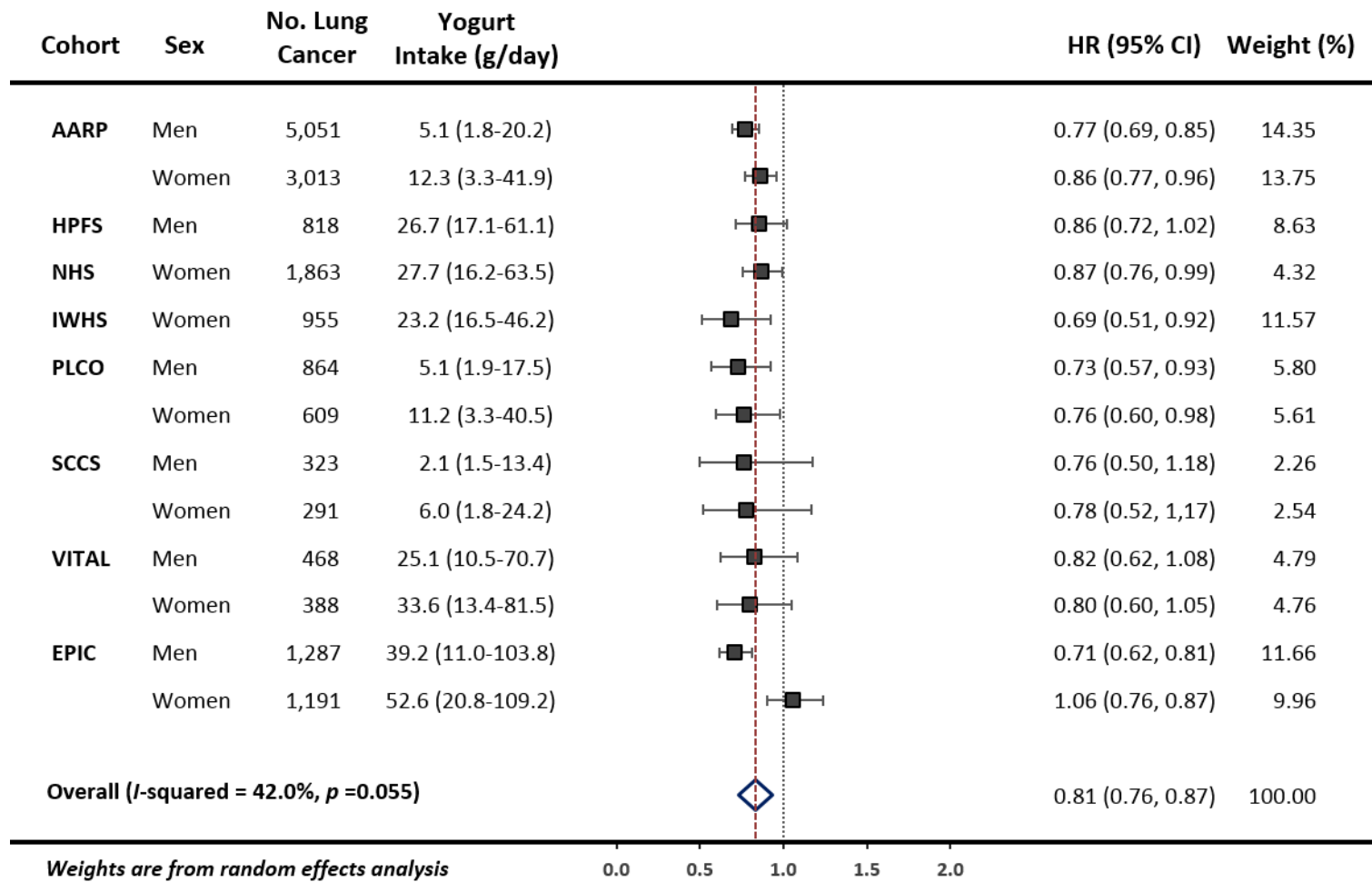
**eFigure 1. Lung Cancer Risk Associated With Dietary Fiber Intake in Each Participating Cohort**



Abbreviations: AARP, National Health Institute-AARP Diet and Health Study; HPFS, Health Professionals Follow-up Study; NHS, Nurses' Health Study; IWHS, Iowa Women's Health Study; PLCO, Prostate, Lung, Colorectal and Ovarian Cancer Screening Trial; SCCS, Southern Community Cohort Study; VITAL, VITamins And Lifestyle Study; EPIC, European Prospective Investigation into Cancer & Nutrition; SMHS, Shanghai Men's Health Study; SWHS, Shanghai Women's Health Study.

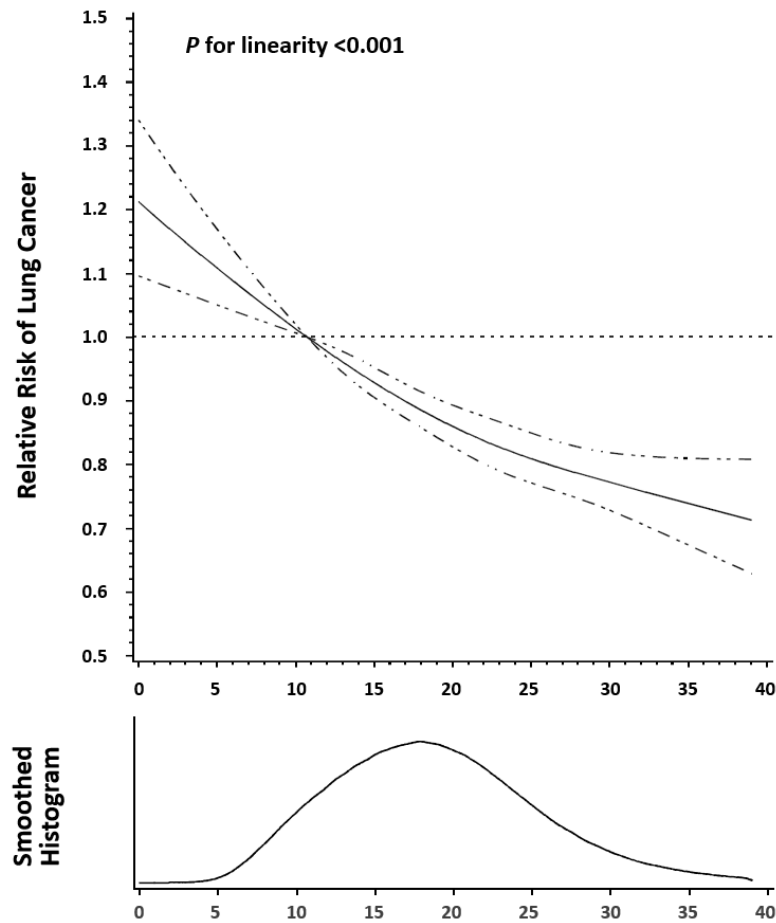
Hazard ratios (HRs) and 95% CIs for the highest vs. lowest sex-specific quintiles of total dietary fiber intake were stratified by birth year and enrollment year; and adjusted for age, total energy, smoking status, smoking pack-years, sex, race/ethnicity, education, obesity status, diabetes, family history of lung cancer, physical activity level, menopausal status in women, and intake of saturated and polyunsaturated fat.

**eFigure 2. Lung Cancer Risk Associated With Yogurt Consumption in Each Participating Cohort**

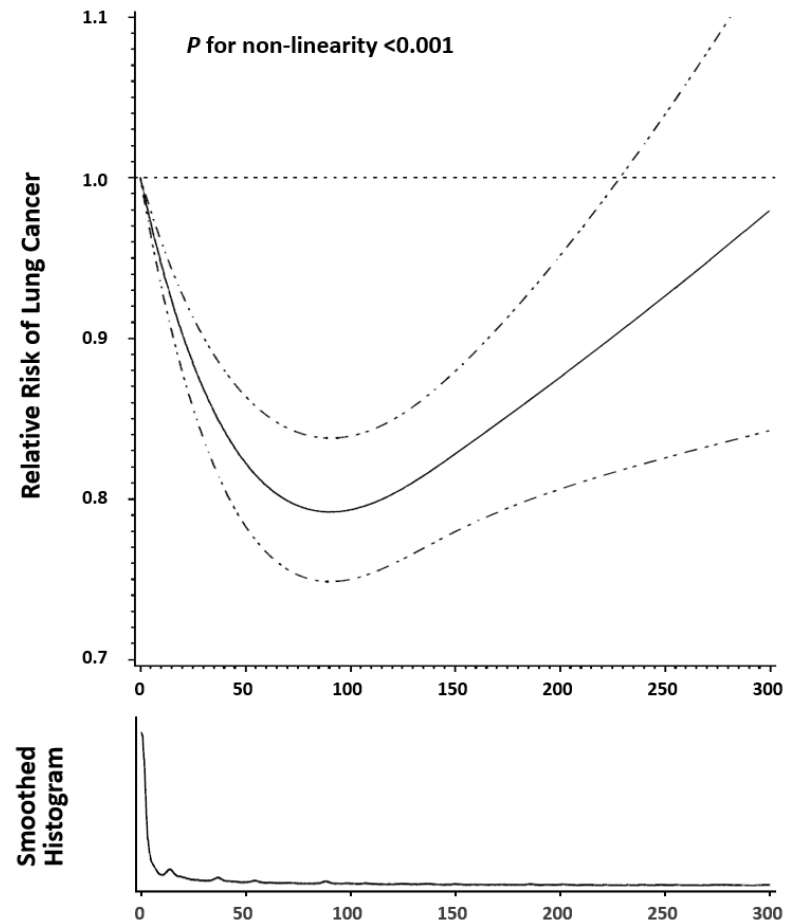


Abbreviations: AARP, National Health Institute-AARP Diet and Health Study; HPFS, Health Professionals Follow-up Study; NHS, Nurses' Health Study; IWHS, Iowa Women's Health Study; PLCO, Prostate, Lung, Colorectal and Ovarian Cancer Screening Trial; SCCS, Southern Community Cohort Study; VITAL, VITamins And Lifestyle Study; EPIC, European Prospective Investigation into Cancer & Nutrition. Participants from the Shanghai Men's/Women's Health Studies and those having invalid data on yogurt consumption were not included in the analysis. Yogurt consumption was defined as none (0 g/day), low ( $\leq$  sex-specific median intake), and high ( $>$ sex-specific median intake). Hazard ratios (HRs) and 95% CIs for high vs. none were stratified by birth year and enrollment year; and adjusted for age, total energy, smoking status, smoking pack-years, sex, race/ethnicity, education, obesity status, diabetes, family history of lung cancer, physical activity level, menopausal status in women, and intake of saturated and polyunsaturated fat.

**eFigure 3. Dose-Response Relationship of Dietary Fiber Intake and Yogurt Consumption With Lung Cancer Risk**



**A. Dietary Fiber Intake (grams/day)**



**B. Yogurt Consumption (grams/day)**

Hazard ratios (solid line) and 95% CIs (dashed line) were estimated in a single dataset pooling all individual-participant data. Participants from the Shanghai Men's and Women's Health Studies were included in the fiber-lung cancer analysis only. No data were available on yogurt consumption in these 2 cohorts. To minimize potential effects of extreme values, participants with the top 1% of each fiber/yogurt intake were excluded from the analysis. The 10th percentile was set as reference. Based upon the Akaike's Information Criterion, four knots were fitted at the 5th, 25th, 75th, and 95th percentiles of fiber intake and three knots were fitted at the 5th, 50th, and 95th percentiles of yogurt consumption. All models were stratified by birth year and enrollment year; and adjusted for age, total energy, smoking status, smoking pack-years, sex, race/ethnicity, education, obesity status, diabetes, family history of lung cancer, physical activity level, menopausal status in women, and intake of saturated and polyunsaturated fat.