SUPPLEMENTAL MATERIAL
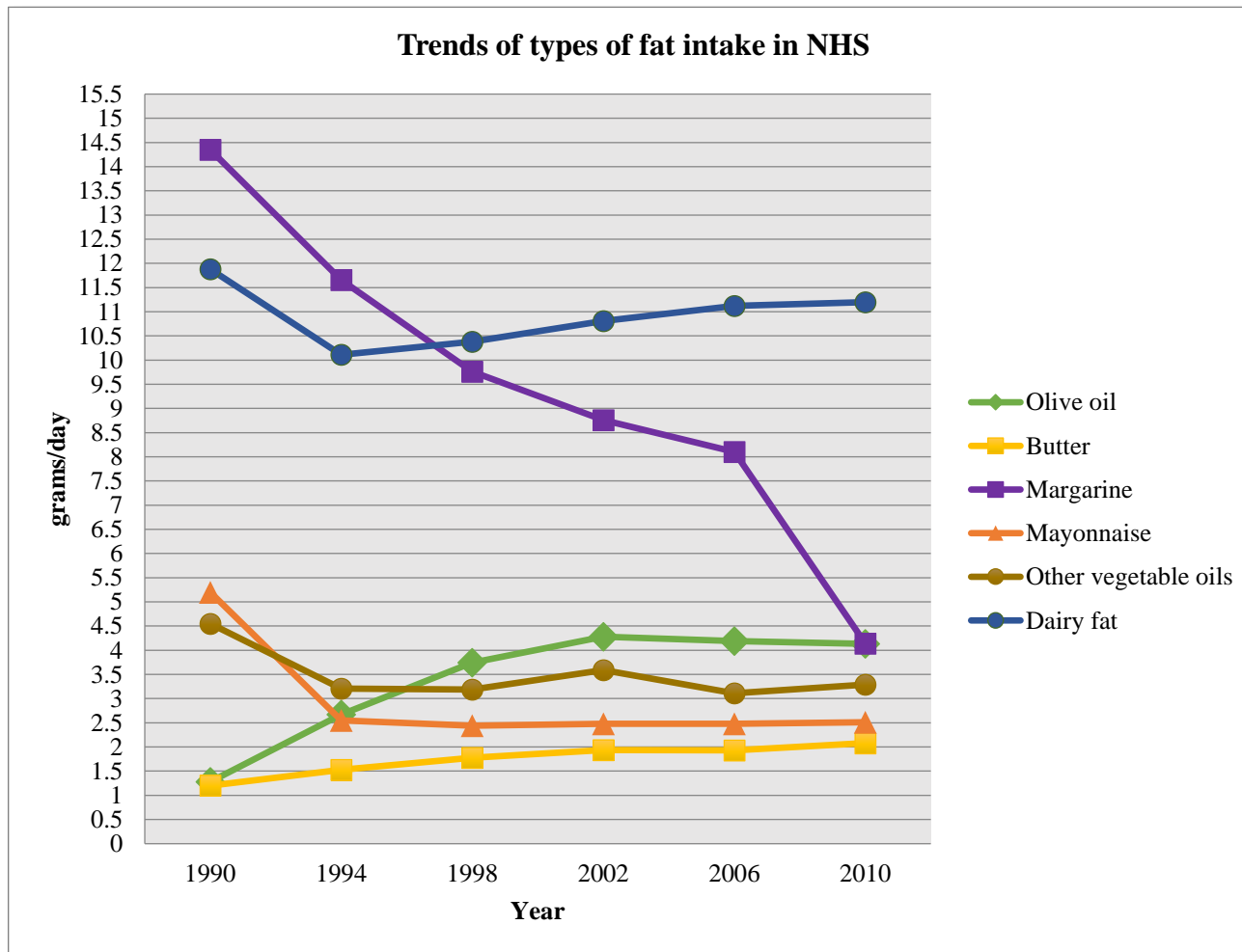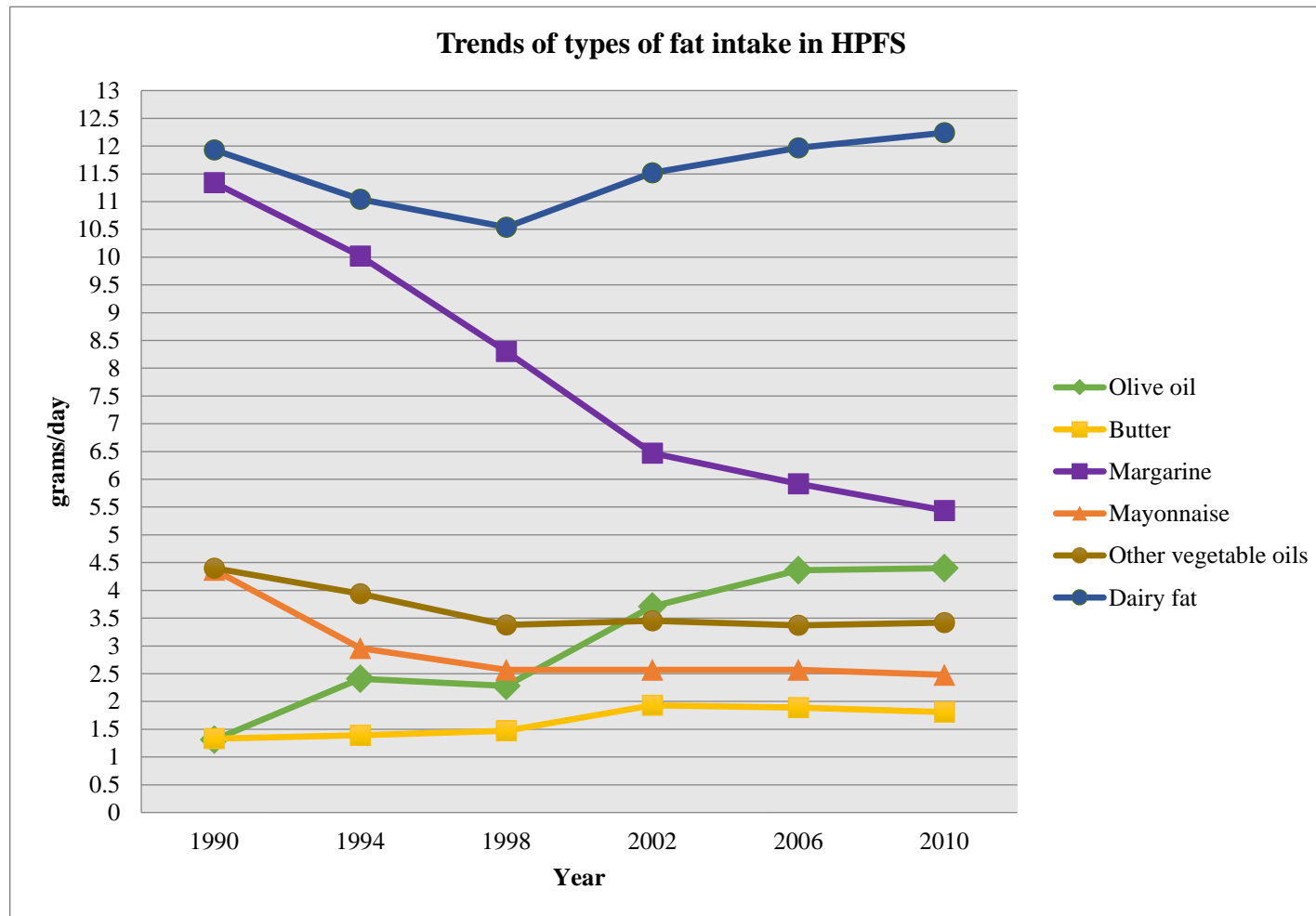
Supplemental figure 1. Trends of types of fat intake from 1990 to 2010 in two prospective cohorts (means in grams per day)

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Trends of types of fat intake in HPFS

Supplemental Table 1. Nutritional composition of olive oil and other types of fat.

	Calories	Total fat	Saturated fat	Monounsaturated fat	Polyunsaturated fat	Oleic acid	Linoleic acid	Alpha-linolenic acid	Arachidonic acid
Olive oil	885	100	13.7	72.8	10.4	71.3	9.7	0.6	0
Mayonnaise	680	74.8	11.7	16.8	44.7	16.4	39.1	5.5	0.05
Margarine	500	57.4	10.6	14.2	17.87	16.4	14.5	3.4	0
Butter	717	81.1	51.4	21.0	3.0	19.9	2.7	0.3	0
Corn oil	900	100	12.9	27.5	54.6	27.3	53.5	1.1	0
Soybean oil	900	100	32.9	22	45.3	18.9	39.7	5.5	0
Safflower oil	885	100	6.2	14.4	74.6	14.4	74/6	0	0
Canola oil	885	100	7.3	63.3	28.2	61.7	19.1	9.1	0

Nutritional composition per 100g of oils and fats using Harvard University Food Composition Database (https://regepi.bwh.harvard.edu/health/nutrition/.)

Supplemental Table 2. Categories for causes of death

Cause of death	ICD-8 code	ICD-9 code
Cardiovascular disease	390-458	390-459
Heart disease	390-429, 440-458	390-429, 440-459
Stroke	430-438	430-438
Cancer	140-207	140-208
Colorectal cancer	153,154	153,154
Lung cancer	162	162
Pancreatic cancer	157	157
Breast cancer	174	174
Ovary cancer	183	183
Prostate cancer	185	185
Respiratory disease	460-519	460-519
Neurodegenerative disease	290, 340, 342, 348	290, 331, 332, 335, 340
All other causes	The rest of the ICD codes	The rest of the ICD codes

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Supplemental Table 3. Spearman correlations between olive oil intake and other types of fat.							
NHS							
	Olive oil	**Margarine**	**Butter**	**Mayonnaise**	**Other vegetable oils**	**Dairy fat**	**All other diet fat**
Olive oil	1						
Margarine	-0.05*	1					
Butter	0.09*	-0.31*	1				
Mayonnaise	-0.06*	0.09*	-0.04*	1			
Other vegetable oils	0.006	0.07*	0.008*	0.77*	1		
Dairy fat	-0.05*	-0.11*	0.36*	0.04*	-0.03*	1	
HPFS							
Olive oil	1						
Margarine	-0.19*	1					
Butter	0.20*	-0.21*	1				
Mayonnaise	-0.03*	0.19*	0.15*	1			
Other vegetable oils	-0.08*	0.19*	0.07*	0.70*	1		
Dairy fat	0.05*	0.05*	0.45*	0.28*	0.23*	1	
NHS, Nurses' Health Study; HPFS, Health Professionals Follow-up Study; *, *P* value <0.001.							

Supplemental Table 4. Hazard Ratios and 95% CI for other causes of death

		Never or <1 per month	>0–≤4.5 g/d (>0 to ≤1 teaspoon)	>4.5–≤ 7 g/d >1 teaspoon to ≤1/2 TBS)	>7 g/d (>1/2 TBS)	*P* for trend	HR (95% CI) for 5 g increase in olive oil intake
NHS	Nº cases/ Person-years	2268/527372	2185/603179	418/117489	716/238877		
	Age-adjusted model 1	1 (Ref.)	0.80 (0.75, 0.86)	0.75 (0.68, 0.84)	0.63 (0.57, 0.68)	<.0001	0.89 (0.87, 0.92)
	Multivariable model 2	1 (Ref.)	0.94 (0.88, 1.00)	0.90 (0.81, 1.00)	0.79 (0.72, 0.87)	<.0001	0.94 (0.92, 0.96)
	Multivariable model 3	1 (Ref.)	0.95 (0.89, 1.01)	0.91 (0.82, 1.01)	0.80 (0.73, 0.88)	<.0001	0.94 (0.92, 0.97)
HPFS	Nº cases/ Person-years	487/276475	386/312247	73/58426	118/103937		
	Age-adjusted model 1	1 (Ref.)	0.81 (0.76, 0.87)	0.76 (0.67, 0.86)	0.73 (0.66, 0.80)	<.0001	0.93 (0.90, 0.96)
	Multivariable model 2	1 (Ref.)	0.96 (0.89, 1.03)	0.89 (0.79, 1.01)	0.91 (0.82, 1.01)	0.07	0.97 (0.94, 1.00)
	Multivariable model 3	1 (Ref.)	0.98 (0.91, 1.05)	0.92 (0.81, 1.05)	0.95 (0.85, 1.06)	0.31	0.98 (0.95, 1.01
Pooled model 1		1 (Ref.)	0.81 (0.77, 0.84)	0.75 (0.69, 0.82)	0.67 (0.62, 0.71)	<.0001	0.91 (0.89, 0.92)
Pooled model 2		1 (Ref.)	0.95 (0.91, 1.00)	0.90 (0.83, 0.98)	0.85 (0.80, 0.92)	<.0001	0.95 (0.93, 0.97)
Pooled model 3		1 (Ref.)	0.96 (0.92, 1.01)	0.91 (0.84, 0.99)	0.87 (0.82, 0.94)	<.0001	0.96 (0.94, 0.98)

Results are expressed as Hazard Ratios (HR) and 95% Confidence Intervals (95% CI). Abbreviations: NHS, Nurses' Health Study, HPFS, Health Professionals Follow-up Study. Model 2 was adjusted for age (years), ethnicity (white, non-white), Southern European/Mediterranean ancestry (yes, no), married (yes/no), living alone(yes/no), smoking status (never, former, current smoker 1-14 cigarettes per day, 15-24 cigarettes per day, or ≥ 25 cigarettes per day), alcohol intake (0, 0.1-4.9,5.0-9.9,10.0-14.9, and ≥ 15.0 g/d), physical activity (<3.0,3.0-8.9,9.0-17.9,18.0-26.9,≥27.00 metabolic equivalent task-h/week), family history of diabetes (yes/no), family history of myocardial infarction (yes/no), family history of cancer (yes/no), history of hypertension (yes/no), history of hypercholesterolemia (yes/no), multivitamin use (yes/no), aspirin use (yes/no), in women postmenopausal status and menopausal hormone use [premenopausal, postmenopausal (no, past, or current hormone use), total energy intake (kilocalories per day) and body mass index (calculated as weight in kilograms divides by height in meters squared). Model 3 was additionally adjusted for red meat, fruits and vegetables, nuts, soda, whole grains intake (in quintiles), and trans fat. Results were pooled using a pooled dataset and stratifying by cohort (sex) and time period.

Supplemental 5. Hazard Ratios (95% CI) of total and cause-specific mortality according to categories of total olive oil intake adjusting for additional socioeconomic factors

	Categories of olive oil intake					
	Never or <1 per month	>0–≤4.5 g/d (>0 to ≤1 teaspoon)	>4.5–≤ 7 g/d >1 teaspoon to ≤1/2 TBS)	>7 g/d (>1/2 TBS)	*P* for trend	HR (95% CI) for 5 g increase in olive oil intake
TOTAL MORTALITY	1 (Ref.)	0.88 (0.86, 0.90)	0.86 (0.83, 0.90)	0.81 (0.78, 0.84)	<0.001	0.96 (0.95, 0.97)
CARDIOVASCULAR DISEASE MORTALITY	1 (Ref.)	0.83 (0.79, 0.87)	0.77 (0.70, 0.84)	0.81 (0.76, 0.88)	<0.001	0.97 (0.95, 0.99)
CANCER MORTALITY	1 (Ref.)	0.85 (0.81, 0.89)	0.94 (0.86, 1.02)	0.83 (0.78, 0.89)	0.001	0.97 (0.95, 0.99)
NEURODEGENERATIVE DISEASE MORTALITY	1 (Ref.)	0.88 (0.83, 0.94)	0.89 (0.79, 0.99)	0.73 (0.66, 0.80)	<.0001	0.92 (0.90, 0.95)
RESPIRATORY DISEASE MORTALITY	1 (Ref.)	0.95 (0.88, 1.04)	0.89 (0.76, 1.03)	0.83 (0.73, 0.94)	0.004	0.95 (0.91, 0.98)

Results for both cohorts pooled. Results are expressed as Hazard Ratios (HR) and 95% Confidence Intervals (95% CI). Abbreviations: NHS, Nurses' Health Study, HPFS, Health Professionals Follow-up Study. Model was adjusted for age (years), ethnicity (white, non-white), Southern European/Mediterranean ancestry (yes, no), married (yes/no), living alone (yes/no), smoking status (never, former, current smoker 1-14 cigarettes per day, 15-24 cigarettes per day, or ≥ 25 cigarettes per day), alcohol intake (0, 0.1-4.9,5.0-9.9,10.0-14.9, and ≥ 15.0 g/d), physical activity (<3.0,3.0-8.9,9.0-17.9,18.0-26.9,≥27.00 metabolic equivalent task-h/week), family history of diabetes (yes/no), family history of myocardial infarction (yes/no), family history of cancer (yes/no), history of hypertension (yes/no), history of hypercholesterolemia (yes/no), multivitamin use (yes/no), aspirin use (yes/no), in women postmenopausal status and menopausal hormone use [premenopausal, postmenopausal (no, past, or current hormone use), total energy intake (kilocalories per day) and body mass index (calculated as weight in kilograms divides by height in meters squared, for red meat, fruits and vegetables, nuts, soda, whole grains intake (in quintiles), trans fat, census-based neighbourhood median family income, median home value, and percentage with college degree. Results were pooled using a pooled dataset and stratifying by cohort (sex) and time period.

Supplemental 6. Hazard Ratios (95% CI) of total and cause-specific mortality according to categories of total olive oil intake adjusting for AHEI

		Categories of olive oil intake					
		Never or <1 per month	>0–≤4.5 g/d (>0 to ≤1 teaspoon)	>4.5–≤ 7 g/d >1 teaspoon to ≤1/2 TBS)	>7 g/d (>1/2 TBS)	*P* for trend	HR (95% CI) for 5 g increase in olive oil intake
		TOTAL MORTALITY					
NHS	Multivariable model	1 (Ref.)	0.87 (0.85, 0.90)	0.87 (0.82, 0.92)	0.81 (0.77, 0.84)	<0.001	0.96 (0.95, 0.97)
HPFS	Multivariable model	1 (Ref.)	0.92 (0.88, 0.95)	0.90 (0.84, 0.96)	0.87 (0.82, 0.92)	<0.001	0.97 (0.96, 0.99)
Pooled model		1 (Ref.)	0.88 (0.86, 0.91)	0.87 (0.84, 0.91)	0.82 (0.79, 0.85)	<0.001	0.96 (0.95, 0.97)
		CARDIOVASCULAR DISEASE MORTALITY					
NHS	Multivariable model	1 (Ref.)	0.82 (0.77, 0.88)	0.74 (0.65, 0.84)	0.86 (0.78, 0.95)	0.01	0.99 (0.96, 1.01)
HPFS	Multivariable model	1 (Ref.)	0.84 (0.78, 0.90)	0.83 (0.73, 0.94)	0.81 (0.73, 0.91)	<0.001	0.97 (0.94, 1.00)
Pooled model		1 (Ref.)	0.83 (0.79, 0.87)	0.78 (0.71, 0.85)	0.83 (0.77, 0.90)	<0.001	0.98 (0.96, 1.00)
		CANCER MORTALITY					
NHS	Multivariable model	1 (Ref.)	0.85 (0.79, 0.90)	0.98 (0.88, 1.08)	0.85 (0.78, 0.93)	0.06	0.98 (0.96, 1.01)
HPFS	Multivariable model		0.89 (0.82, 0.96)	0.92 (0.81, 1.05)	0.83 (0.74, 0.93)	0.01	0.95 (0.92, 0.99)
Pooled model		1 (Ref.)	0.86 (0.82, 0.90)	0.95 (0.87, 1.03)	0.84 (0.78, 0.90)	0.002	0.97 (0.95, 0.99)
		NEURODEGENERATIVE DISEASE MORTALITY					
NHS	Multivariable model	1 (Ref.)	0.83 (0.77, 0.89)	0.89 (0.77, 1.00)	0.67 (0.60, 0.76)	<.0001	0.91 (0.88, 0.94)
HPFS	Multivariable model	1 (Ref.)	1.03 (0.90, 1.16)	0.99 (0.79, 1.25)	0.94 (0.78, 1.15)	0.51	0.98 (0.93, 1.03)

Pooled model		1 (Ref.)	0.95 (0.89, 1.00)	0.96 (0.86, 1.08)	0.80 (0.72, 0.89)	0.0003	0.93 (0.89, 0.96)
			RESPIRATORY DISEASE MORTALITY				
NHS	Multivariable model	1 (Ref.)	0.96 (0.86, 1.06)	0.89 (0.73, 1.08)	0.84 (0.71, 0.99)	0.04	0.93 (0.88, 0.98)
HPFS	Multivariable model	1 (Ref.)	0.99 (0.86, 1.13)	0.93 (0.72, 1.20)	0.92 (0.74, 1.14)	0.38	0.98 (0.92, 1.04)
Pooled model		1 (Ref.)	0.96 (0.89, 1.04)	0.90 (0.77, 1.05)	0.86 (0.75, 0.98)	0.01	0.95 (0.92, 0.99)
			OTHER DEATHS				
NHS	Multivariable model	1 (Ref.)	0.96 (0.90, 1.03)	0.89 (0.79, 1.01)	0.84 (0.76, 0.93)	0.0005	0.96 (0.93, 0.99)
HPFS	Multivariable model	1 (Ref.)	0.98 (0.91, 1.05)	0.93 (0.82, 1.06)	0.96 (0.87, 1.07)	0.42	0.99 (0.96, 1.02)
Pooled model		1 (Ref.)	0.96 (0.92, 1.01)	0.92 (0.84, 1.00)	0.87 (0.81, 0.93)	<.0001	0.96 (0.94, 0.98)

Results are expressed as Hazard Ratios (HR) and 95% Confidence Intervals (95% CI). Abbreviations: NHS, Nurses' Health Study, HPFS, Health Professionals Follow-up Study. Model 2 was adjusted for age (years), ethnicity (white, non-white), married (yes/no), living alone (yes/no), Southern European/Mediterranean ancestry (yes, no), smoking status (never, former, current smoker 1-14 cigarettes per day, 15-24 cigarettes per day, or ≥ 25 cigarettes per day), alcohol intake (0, 0.1-4.9,5.0-9.9,10.0-14.9, and ≥ 15.0 g/d), physical activity (<3.0,3.0-8.9,9.0-17.9,18.0-26.9,≥27.00 metabolic equivalent task-h/week), family history of diabetes (yes/no), family history of myocardial infarction (yes/no), family history of cancer (yes/no), history of hypertension (yes/no), history of hypercholesterolemia (yes/no), multivitamin use (yes/no), aspirin use (yes/no), in women postmenopausal status and menopausal hormone use [premenopausal, postmenopausal (no, past, or current hormone use), total energy intake (kilocalories per day) and body mass index (calculated as weight in kilograms divides by height in meters squared). Model 3 was additionally adjusted for AHEI (excluding polyunsaturated fatty acids and alcohol). Results were pooled using a pooled dataset and stratifying by cohort (sex) and time period.

Supplemental Table 7. Hazard Ratios (95% CI) of total and cause-specific mortality according to categories of cumulative average of olive oil intake

	Categories of olive oil intake					
	Never or <1 per month	>0–≤4.5 g/d (>0 to ≤1 teaspoon)	>4.5–≤ 7 g/d >1 teaspoon to ≤1/2 TBS)	>7 g/d (>1/2 TBS)	*P* for trend	HR (95% CI) for 5 g increase in olive oil intake
TOTAL MORTALITY						
Pooled model 1	1 (Ref.)	0.77 (0.75, 0.79)	0.71 (0.68, 0.74)	0.64 (0.62, 0.67)	<0.001	0.88 (0.86, 0.89)
Pooled model 2	1 (Ref.)	0.89 (0.87, 0.91)	0.87 (0.83, 0.91)	0.82 (0.78, 0.85)	<0.001	0.94 (0.93, 0.96)
Pooled model 3	1 (Ref.)	0.90 (0.88, 0.92)	0.88 (0.84, 0.92)	0.82 (0.79, 0.86)	<0.001	0.95 (0.93, 0.96)
CARDIOVASCULAR DISEASE MORTALITY						
Pooled model 1	1 (Ref.)	0.70 (0.67, 0.74)	0.67 (0.61, 0.73)	0.64 (0.59, 0.69)	<0.001	0.89 (0.86, 0.91)
Pooled model 2	1 (Ref.)	0.80 (0.76, 0.84)	0.82 (0.75, 0.90)	0.82 (0.76, 0.89)	0.002	0.97 (0.94, 0.99)
Pooled model 3	1 (Ref.)	0.81 (0.77, 0.85)	0.83 (0.75, 0.90)	0.81 (0.75, 0.88)	0.002	0.96 (0.94, 0.99)
CANCER MORTALITY						
Pooled model 1	1 (Ref.)	0.81 (0.78, 0.85)	0.79 (0.72, 0.85)	0.77 (0.72, 0.83)	<0.001	0.94 (0.91, 0.96)
Pooled model 2	1 (Ref.)	0.88 (0.84, 0.92)	0.88 (0.81, 0.95)	0.86 (0.80, 0.93)	0.01	0.97 (0.94, 1.00)
Pooled model 3	1 (Ref.)	0.89 (0.85, 0.93)	0.90 (0.83, 0.98)	0.89 (0.83, 0.97)	0.10	0.98 (0.95, 1.01)
NEURODEGENERATIVE DISEASE MORTALITY						
Pooled model 1	1 (Ref.)	0.74 (0.69, 0.78)	0.68 (0.61, 0.76)	0.55 (0.49, 0.61)	<.0001	0.83 (0.80, 0.86)
Pooled model 2	1 (Ref.)	0.95 (0.89, 1.00)	0.96 (0.86, 1.08)	0.80 (0.72, 0.88)	<.0001	0.93 (0.89, 0.96)
Pooled model 3	1 (Ref.)	0.93 (0.87, 0.99)	0.93 (0.83, 1.04)	0.75 (0.67, 0.84)	<.0001	0.92 (0.88, 0.95)
RESPIRATORY DISEASE MORTALITY						
Pooled model 1	1 (Ref.)	0.78 (0.72, 0.85)	0.70 (0.61, 0.82)	0.57 (0.49, 0.65)	<0.001	0.81 (0.77, 0.86)
Pooled model 2	1 (Ref.)	0.87 (0.80, 0.95)	0.83 (0.71, 0.97)	0.68 (0.58, 0.79)	<.0001	0.87 (0.82, 0.92)

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Pooled model 3	1 (Ref.)	0.92 (0.85, 1.00)	0.92 (0.79, 1.08)	0.76 (0.65, 0.88)	0.002	0.91 (0.86, 0.96)

Results are expressed as Hazard Ratios (HR) and 95% Confidence Intervals (95% CI). Abbreviations: NHS, Nurses' Health Study, HPFS, Health Professionals Follow-up Study. Model 2 was adjusted for age (years), ethnicity (white, non-white), Southern European/Mediterranean ancestry (yes, no), married (yes/no), living alone (yes/no), smoking status (never, former, current smoker 1-14 cigarettes per day, 15-24 cigarettes per day, or ≥ 25 cigarettes per day), alcohol intake (0, 0.1-4.9,5.0-9.9,10.0-14.9, and ≥ 15.0 g/d), physical activity (<3.0,3.0-8.9,9.0-17.9,18.0-26.9,≥27.00 metabolic equivalent task-h/week), family history of diabetes (yes/no), family history of myocardial infarction (yes/no), family history of cancer (yes/no), history of hypertension (yes/no), history of hypercholesterolemia (yes/no), multivitamin use (yes/no), aspirin use (yes/no), in women postmenopausal status and menopausal hormone use [premenopausal, postmenopausal (no, past, or current hormone use), total energy intake (kilocalories per day) and body mass index (calculated as weight in kilograms divides by height in meters squared). Model 3 was additionally adjusted for red meat, fruits and vegetables, nuts, soda, whole grains intake (in quintiles), and trans fat. Results were pooled using a pooled dataset and stratifying by cohort (sex) and time period.
Using cumulative average of olive oil intake since 1990.

Supplemental 8. Hazard Ratios (95% CI) of total and cause-specific mortality according to categories of olive oil intake mutually adjusting for other types of dietary fats

	Categories of olive oil intake					
	Never or <1 per month	>0–≤4.5 g/d (>0 to ≤1 teaspoon)	>4.5–≤ 7 g/d >1 teaspoon to ≤1/2 TBS)	>7 g/d (>1/2 TBS)	*P* for trend	HR (95% CI) for 5 g increase in olive oil intake
TOTAL MORTALITY	1 (Ref.)	0.88 (0.85, 0.90)	0.85 (0.81, 0.89)	0.79 (0.76, 0.82)	<0.001	0.94 (0.93, 0.95)
CARDIOVASCULAR DISEASE MORTALITY	1 (Ref.)	0.84 (0.80, 0.89)	0.77 (0.70, 0.85)	0.82 (0.76, 0.89)	0.008	0.96 (0.93, 0.99)
CANCER MORTALITY	1 (Ref.)	0.84 (0.80, 0.89)	0.91 (0.84, 0.99)	0.81 (0.76, 0.88)	0.06	0.97 (0.94, 1.00)
NEURODEGENERATIVE DISEASE MORTALITY	1 (Ref.)	0.87 (0.82, 0.93)	0.88 (0.78, 0.99)	0.70 (0.64, 0.78)	<.0001	0.92 (0.89, 0.94)
RESPIRATORY DISEASE MORTALITY	1 (Ref.)	0.94 (0.86, 1.02)	0.84 (0.71, 0.99)	0.78 (0.68, 0.89)	<.0001	0.88 (0.83, 0.94)

Results for both cohorts pooled. Results are expressed as Hazard Ratios (HR) and 95% Confidence Intervals (95% CI). Abbreviations: NHS, Nurses' Health Study, HPFS, Health Professionals Follow-up Study. Model was adjusted for age (years), ethnicity (white, non-white), Southern European/Mediterranean ancestry (yes, no), married (yes/no), living alone (yes/no), smoking status (never, former, current smoker 1-14 cigarettes per day, 15-24 cigarettes per day, or ≥ 25 cigarettes per day), alcohol intake (0, 0.1-4.9,5.0-9.9,10.0-14.9, and ≥ 15.0 g/d), physical activity (<3.0,3.0-8.9,9.0-17.9,18.0-26.9,≥27.00 metabolic equivalent task-h/week), family history of diabetes (yes/no), family history of myocardial infarction (yes/no), family history of cancer (yes/no), history of hypertension (yes/no), history of hypercholesterolemia (yes/no), multivitamin use (yes/no), aspirin use (yes/no), in women postmenopausal status and menopausal hormone use [premenopausal, postmenopausal (no, past, or current hormone use), total energy intake (kilocalories per day) and body mass index (calculated as weight in kilograms divides by height in meters squared, for red meat, fruits and vegetables, nuts, soda, whole grains intake (in quintiles), trans fat and mutually adjusted for other types of dietary fat (mayonnaise, margarine, dairy fat and other plant oils). Results were pooled using a pooled dataset and stratifying by cohort (sex) and time period.

Supplemental 9. Hazard Ratios (95% CI) of cause-specific mortality according to categories of total olive oil intake applying a competing-risk regression model

	Categories of olive oil intake					
	Never or <1 per month	>0–≤4.5 g/d (>0 to ≤1 teaspoon)	>4.5–≤ 7 g/d >1 teaspoon to ≤1/2 TBS)	>7 g/d (>1/2 TBS)	*P* for trend	HR (95% CI) for 5 g increase in olive oil intake
CARDIOVASCULAR DISEASE MORTALITY	1 (Ref.)	0.90 (0.86, 0.95)	1.01 (0.93, 1.09)	0.91 (0.86, 0.98)	0.08	0.99 (0.97, 1.00)
CANCER MORTALITY	1 (Ref.)	0.83 (0.79, 0.87)	0.77 (0.70, 0.84)	0.80 (0.75, 0.86)	<.001	0.96 (0.94, 0.98)
NEURODEGENERATIVE DISEASE MORTALITY	1 (Ref.)	0.78 (0.74, 0.83)	0.80 (0.72, 0.89)	0.66 (0.60, 0.72)	<.0001	0.91 (0.88, 0.93)
RESPIRATORY DISEASE MORTALITY	1 (Ref.)	0.92 (0.84, 0.99)	0.84 (0.72, 0.97)	0.77 (0.68, 0.87)	<.0001	0.93 (0.89, 0.96)
OTHER CAUSES OF DEATH	1 (Ref.)	0.95 (0.90, 0.99)	0.86 (0.80, 0.94)	0.83 (0.77, 0.88)	<.0001	0.95 (0.94, 0.97)

Results for both cohorts pooled. Results are expressed as Hazard Ratios (HR) and 95% Confidence Intervals (95% CI). Abbreviations: NHS, Nurses' Health Study, HPFS, Health Professionals Follow-up Study. Model was adjusted for age (years), ethnicity (white, non-white), Southern European/Mediterranean ancestry (yes, no), married (yes/no), living alone (yes/no), smoking status (never, former, current smoker 1-14 cigarettes per day, 15-24 cigarettes per day, or ≥ 25 cigarettes per day), alcohol intake (0, 0.1-4.9,5.0-9.9,10.0-14.9, and ≥ 15.0 g/d), physical activity (<3.0,3.0-8.9,9.0-17.9,18.0-26.9,≥27.00 metabolic equivalent task-h/week), family history of diabetes (yes/no), family history of myocardial infarction (yes/no), family history of cancer (yes/no), history of hypertension (yes/no), history of hypercholesterolemia (yes/no), multivitamin use (yes/no), aspirin use (yes/no), in women postmenopausal status and menopausal hormone use [premenopausal, postmenopausal (no, past, or current hormone use), total energy intake (kilocalories per day) and body mass index (calculated as weight in kilograms divides by height in meters squared, for red meat, fruits and vegetables, nuts, soda, whole grains intake (in quintiles), trans fat, census-based neighbourhood median family income, median home value, and percentage with college degree. Results were pooled using a pooled dataset and stratifying by cohort (sex) and time period. We applied a competing-risk regression model for cause-specific mortality by including olive oil as the exposure and other risk factors as an unconstrained covariate, allowing the effects of the covariates to vary across cause-specific mortality.

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Supplemental Table 10. Hazard Ratios and 95% CI for all-cause and cause-specific mortality associated with olive oil substituted for other fats					
	Total mortality	CVD mortality	Cancer mortality	Neurodegenerative disease mortality	Respiratory mortality
Olive oil for margarine	0.87 (0.85, 0.89)	0.90 (0.86, 0.94)	0.89 (0.85, 0.93)	0.88 (0.82, 0.94)	0.85 (0.78, 0.92)
Olive oil for butter	0.86 (0.83, 0.88)	0.93 (0.87, 0.99)	0.91 (0.86, 0.95)	0.92 (0.85, 1.00)	0.80 (0.72, 0.88)
Olive oil for mayonnaise	0.81 (0.78, 0.84)	0.84 (0.77, 0.92)	0.86 (0.80, 0.93)	0.80 (0.72, 0.90)	0.66 (0.58, 0.77)
Olive oil for other vegetable oils	1.00 (0.95, 1.06)	1.08 (0.97, 1.21)	0.96 (0.86, 1.06)	0.92 (0.85, 1.00)	1.11 (0.92, 1.35)
Olive oil for dairy fat	0.87 (0.84, 0.89)	0.92 (0.87, 0.97)	0.91 (0.87, 0.96)	0.83 (0.77, 0.89)	0.77 (0.70, 0.84)
Hazard ratios for total and cause-specific mortality among study participants substituting 10 g of olive for equivalent amount of other dietary fats. Abbreviations: NHS, Nurses' Health Study, HPFS, Health Professionals Follow-up Study. Model was adjusted for age (years), ethnicity (white, non-white), Southern European/Mediterranean ancestry (yes, no), married (yes/no), living alone (yes/no), smoking status (never, former, current smoker 1-14 cigarettes per day, 15-24 cigarettes per day, or ≥ 25 cigarettes per day), alcohol intake (0, 0.1-4.9,5.0-9.9,10.0-14.9, and ≥ 15.0 g/d), physical activity (<3.0,3.0-8.9,9.0-17.9,18.0-26.9,≥27.00 metabolic equivalent task-h/week), family history of diabetes (yes/no), family history of myocardial infarction (yes/no), family history of cancer (yes/no), multivitamin use (yes/no), aspirin use (yes/no), in women postmenopausal status and menopausal hormone use [premenopausal, postmenopausal (no, past, or current hormone use), total energy intake (kilocalories per day) and body mass index (calculated as weight in kilograms divides by height in meters squared). Model 3 was additionally adjusted for the consumption of red meat, fruits and vegetables, nuts, soda, whole grains (in quintiles), and the intake of trans fat, and mutually adjusted for the intake of other types of fat. Results were pooled using a pooled dataset and stratifying by cohort (sex) and time period.					