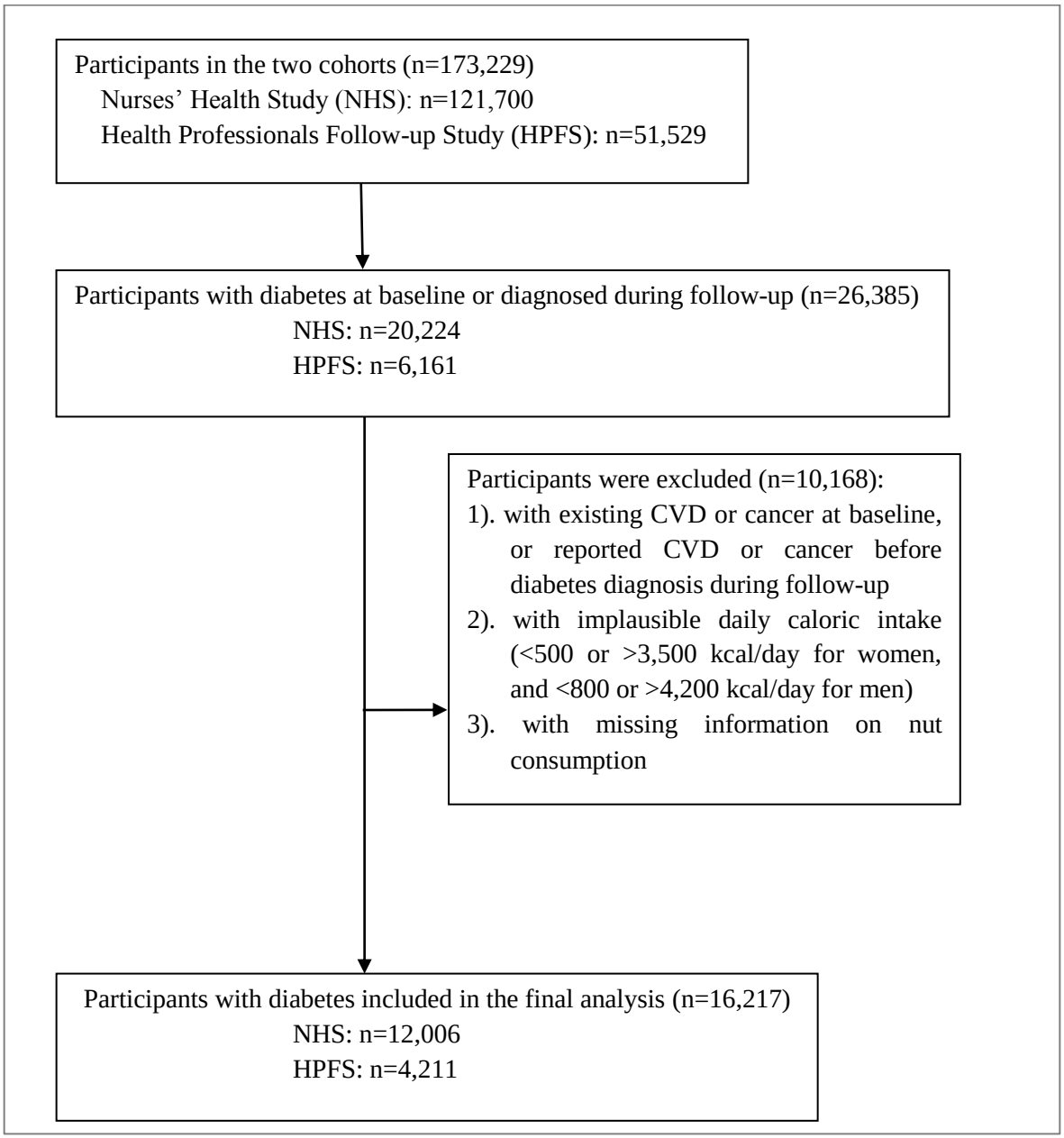
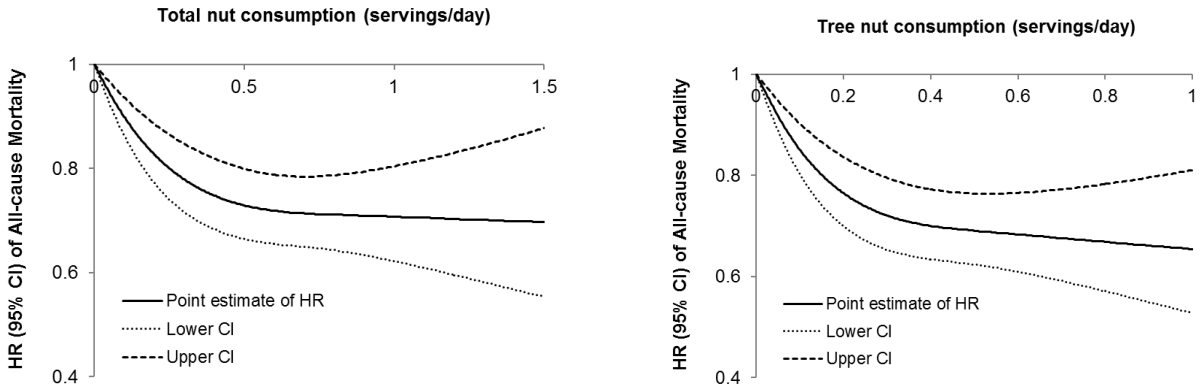
Supplemental Material

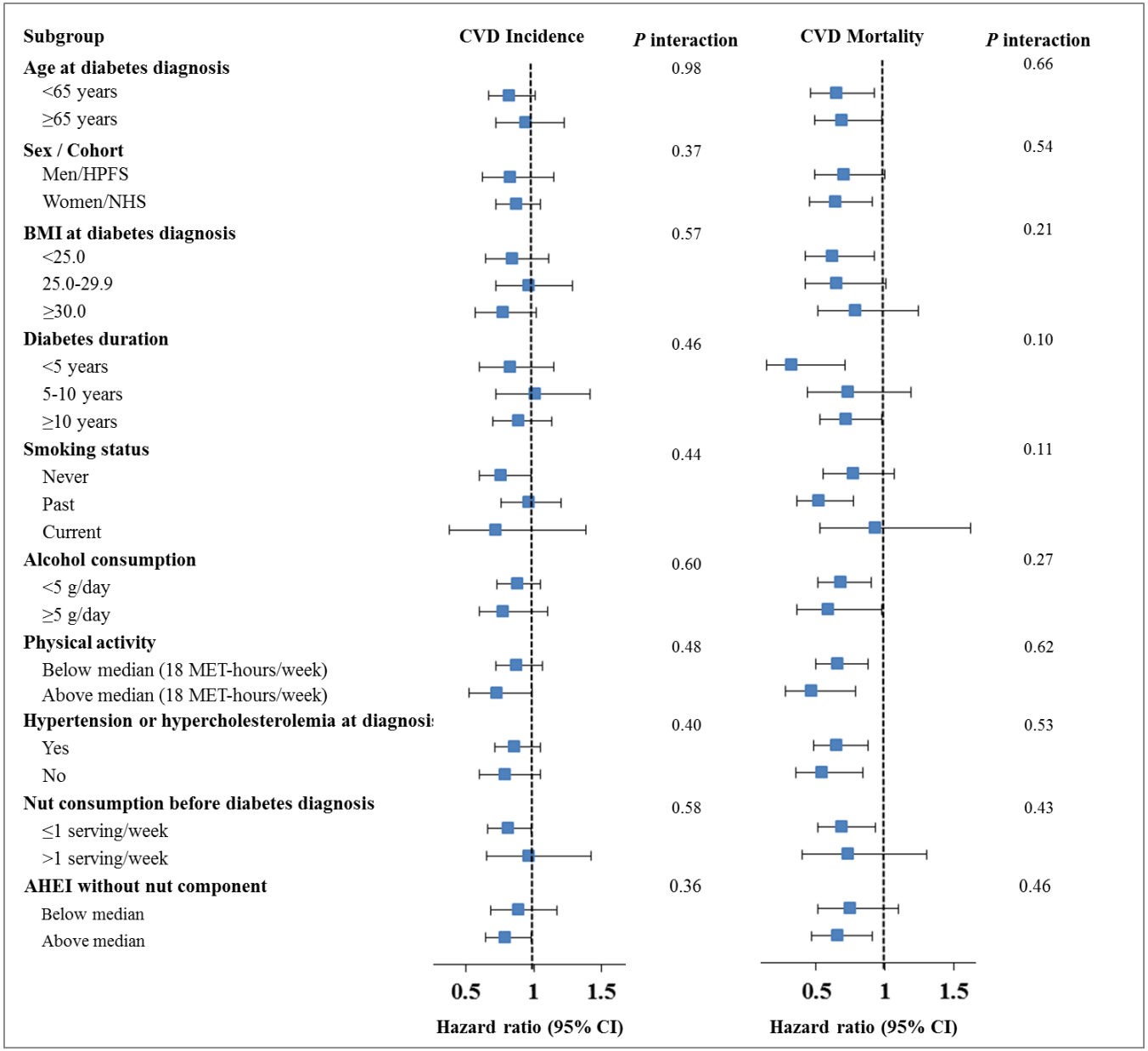


Online Figure I. Flowchart of participants with diabetes included in the analysis



Online Figure II. Associations between total and tree nut consumption and all-cause mortality*

* Hazard ratios were adjusted for age (continuous), diabetes duration (years), sex (men or women), Caucasian (yes/no), BMI at diabetes diagnosis (<23.0, 23.0-24.9, 25.0-29.9, 30.0-34.9, ≥35.0 kg/m^2), physical activity (<3.0, 3.0-8.9, 9.0-17.9, 18.0-26.9, ≥27.0 MET-hours/week), smoking status (never, past, current 1-14 cigarettes/day, current ≥15 cigarettes/day), alcohol consumption (0, 0.1-4.9, 5.0-14.9, ≥15.0 g/day), family history of MI or cancer (yes/no), current aspirin use (yes/no), presence of hypertension (yes/no), use of lipid-lowering medication (yes/no), diabetes medication use (insulin, oral medication, or others), and intake of total energy, red or processed meat, fruits, and vegetables (all in quartiles). Both *P* for non-linearity were <0.001.



Online Figure III. Hazard ratios (95% CIs) of CVD incidence and CVD mortality according to total nut consumption after diabetes diagnosis in subgroups*

* Multivariable analyses were adjusted for age (continuous), diabetes duration (years), sex (men or women), Caucasian (yes/no), BMI at diabetes diagnosis (<23.0, 23.0-24.9, 25.0-29.9, 30.0-34.9, ≥35.0 kg/m^2), physical activity (<3.0, 3.0-8.9, 9.0-17.9, 18.0-26.9, ≥27.0 MET-hours/week), smoking status (never, past, current 1-14 cigarettes/day, current ≥15 cigarettes/day), alcohol consumption (0, 0.1-4.9, 5.0-14.9, ≥15.0 g/day), current aspirin use (yes/no), family history of MI or cancer (yes/no), presence of hypertension (yes/no), use of lipid-lowering medication (yes/no), diabetes medication use (insulin, oral medication, or others), and intake of total energy, red or processed meat, fruits, and vegetables (all in quartiles). Stratifying variables were not included in the model when analyses were stratified by these variables individually. AHEI: Alternate Healthy Eating Index.

Online Table I. Partial Spearman correlation coefficients among types of nut consumption before and after diabetes diagnosis*

	Nut consumption after diabetes diagnosis		
	Total nuts	Tree nuts	Peanuts
After diabetes diagnosis			
Total nuts	1.00	----	----
Tree nuts	0.80**	1.00	----
Peanuts	0.75**	0.42**	1.00
Before diabetes diagnosis			
Total nuts	0.39**	0.33**	0.34**
Tree nuts	0.30**	0.39**	0.22**
Peanuts	0.33**	0.22**	0.43**

* Adjusted for age, diabetes duration, sex, ethnicity, BMI at diabetes diagnosis, physical activity, smoking status, alcohol consumption, family history of MI or cancer, current aspirin use, total energy intake, and AHEI excluding nuts. ** $P<0.001$.

Online Table II. Hazard ratios (95% CIs) of CVD incidence and mortality according to total nut consumption after diabetes diagnosis using the average of last two FFQs*

	Total Nut Consumption					*P* trend
	<1 serving/month	<1 serving/week	1 serving/week	2-4 servings/week	≥5 servings/week	
CVD Incidence						
Total CVD Incidence						
Age-adjusted model	1.00	0.91 (0.84, 1.00)	0.99 (0.90, 1.10)	0.73 (0.65, 0.82)	0.74 (0.63, 0.87)	<0.001
Multivariable model	1.00	0.96 (0.88, 1.05)	1.06 (0.95, 1.18)	0.81 (0.72, 0.91)	0.84 (0.71, 1.00)	0.01
CHD Incidence						
Age-adjusted model	1.00	0.89 (0.80, 0.98)	0.95 (0.84, 1.06)	0.67 (0.59, 0.76)	0.67 (0.56, 0.81)	<0.001
Multivariable model	1.00	0.92 (0.83, 1.02)	1.00 (0.89, 1.13)	0.74 (0.65, 0.85)	0.78 (0.64, 0.94)	<0.001
Stroke Incidence						
Age-adjusted model	1.00	1.01 (0.84, 1.22)	1.14 (0.93, 1.40)	0.93 (0.75, 1.17)	0.96 (0.71, 1.32)	0.64
Multivariable model	1.00	1.08 (0.89, 1.31)	1.24 (1.00, 1.54)	1.04 (0.82, 1.31)	1.07 (0.77, 1.48)	0.85
All-Cause and Cause-Specific Mortality						
CVD Mortality						
Age-adjusted model	1.00	0.72 (0.63, 0.82)	0.69 (0.59, 0.80)	0.54 (0.46, 0.63)	0.45 (0.35, 0.57)	<0.001
Multivariable model	1.00	0.87 (0.77, 1.00)	0.87 (0.74, 1.02)	0.75 (0.63, 0.89)	0.65 (0.51, 0.83)	<0.001
Cancer Mortality						
Age-adjusted model	1.00	0.76 (0.66, 0.88)	0.68 (0.57, 0.81)	0.73 (0.62, 0.86)	0.62 (0.49, 0.79)	<0.001
Multivariable model	1.00	0.82 (0.70, 0.95)	0.73 (0.61, 0.88)	0.82 (0.69, 0.98)	0.69 (0.54, 0.89)	0.01
All-Cause Mortality						
Age-adjusted model	1.00	0.68 (0.63, 0.73)	0.61 (0.56, 0.66)	0.54 (0.50, 0.59)	0.46 (0.40, 0.51)	<0.001
Multivariable model	1.00	0.84 (0.78, 0.90)	0.78 (0.71, 0.85)	0.76 (0.70, 0.83)	0.66 (0.58, 0.74)	<0.001

* Multivariable analyses were adjusted for age (continuous), diabetes duration (years), sex (men or women), Caucasian (yes/no), BMI at diabetes diagnosis (<23.0, 23.0-24.9, 25.0-29.9, 30.0-34.9, ≥35.0 kg/m^2), physical activity (<3.0, 3.0-8.9, 9.0-17.9, 18.0-26.9, ≥27.0 MET-hours/week), smoking status (never, past, current 1-14 cigarettes/day, current ≥15 cigarettes/day), alcohol consumption (0, 0.1-4.9, 5.0-14.9, ≥15.0 g/day), family history of MI or cancer (yes/no), current aspirin use (yes/no), presence of hypertension (yes/no), use of lipid-lowering medication (yes/no), diabetes medication use (insulin, oral medication, or others), and intake of total energy, red or processed meat, fruits, and vegetables (all in quartiles).

Online Table III. Hazard ratios (95% CIs) of CVD incidence and mortality according to total nut consumption after diabetes diagnosis with further adjustment in sensitivity analyses

	Total Nut Consumption					*P* trend
	<1 serving/month	<1 serving/week	1 serving/week	2-4 servings/week	≥5 servings/week	
Further adjustment for total intake of sodium and olive oil *						
Total CVD Incidence	1.00	1.05 (0.95, 1.16)	1.10 (0.99, 1.22)	0.93 (0.83, 1.04)	0.84 (0.72, 0.99)	0.01
CHD Incidence	1.00	1.04 (0.93, 1.17)	1.06 (0.94, 1.20)	0.86 (0.75, 0.98)	0.81 (0.67, 0.98)	0.008
Stroke Incidence	1.00	1.07 (0.87, 1.32)	1.23 (0.98, 1.53)	1.16 (0.92, 1.45)	0.94 (0.68, 1.29)	0.75
CVD Mortality	1.00	0.99 (0.86, 1.15)	0.98 (0.83, 1.15)	0.85 (0.72, 1.01)	0.67 (0.52, 0.85)	<0.001
Cancer Mortality	1.00	0.95 (0.81, 1.12)	0.94 (0.78, 1.13)	0.92 (0.77, 1.09)	0.87 (0.69, 1.09)	0.12
All-Cause Mortality	1.00	0.90 (0.83, 0.98)	0.88 (0.80, 0.96)	0.80 (0.73, 0.87)	0.69 (0.61, 0.79)	<0.001
Further adjustment for Alternate Healthy Eating Index without nut component instead of individual foods intake *						
Total CVD Incidence	1.00	1.05 (0.95, 1.16)	1.10 (0.98, 1.22)	0.94 (0.84, 1.05)	0.86 (0.73, 1.02)	0.04
CHD Incidence	1.00	1.04 (0.93, 1.16)	1.06 (0.93, 1.19)	0.87 (0.76, 0.99)	0.83 (0.69, 1.00)	0.02
Stroke Incidence	1.00	1.07 (0.87, 1.32)	1.23 (0.99, 1.53)	1.17 (0.93, 1.46)	0.95 (0.69, 1.32)	0.86
CVD Mortality	1.00	0.99 (0.86, 1.15)	0.99 (0.84, 1.16)	0.89 (0.75, 1.05)	0.72 (0.56, 0.91)	0.005
Cancer Mortality	1.00	0.96 (0.82, 1.13)	0.95 (0.79, 1.14)	0.94 (0.79, 1.12)	0.88 (0.70, 1.11)	0.29
All-Cause Mortality	1.00	0.92 (0.85, 0.99)	0.91 (0.83, 0.99)	0.84 (0.77, 0.92)	0.74 (0.66, 0.84)	<0.001
Further adjustment for number of natural teeth *						
Total CVD Incidence	1.00	1.04 (0.94, 1.15)	1.08 (0.97, 1.21)	0.91 (0.82, 1.03)	0.84 (0.71, 0.98)	0.01
CHD Incidence	1.00	1.03 (0.92, 1.15)	1.04 (0.92, 1.18)	0.84 (0.74, 0.96)	0.81 (0.67, 0.97)	0.006
Stroke Incidence	1.00	1.07 (0.86, 1.32)	1.22 (0.98, 1.52)	1.15 (0.92, 1.44)	0.93 (0.68, 1.29)	0.75
CVD Mortality	1.00	0.97 (0.84, 1.11)	0.94 (0.80, 1.11)	0.83 (0.70, 0.98)	0.66 (0.52, 0.84)	<0.001
Cancer Mortality	1.00	0.93 (0.79, 1.10)	0.91 (0.76, 1.09)	0.90 (0.75, 1.07)	0.84 (0.67, 1.06)	0.15
All-Cause Mortality	1.00	0.89 (0.82, 0.97)	0.87 (0.79, 0.95)	0.79 (0.72, 0.86)	0.69 (0.61, 0.78)	<0.001

* Multivariable analyses were adjusted for age (continuous), diabetes duration (years), sex (men or women), Caucasian (yes/no), BMI at diabetes diagnosis (<23.0, 23.0-24.9, 25.0-29.9, 30.0-34.9, ≥35.0 kg/m^2), physical activity (<3.0, 3.0-8.9, 9.0-17.9, 18.0-26.9, ≥27.0 MET-hours/week), smoking status (never, past, current 1-14 cigarettes/day, current ≥15 cigarettes/day), alcohol consumption (0, 0.1-4.9, 5.0-14.9, ≥15.0 g/day), family history of MI or cancer (yes/no), current aspirin use (yes/no), presence of hypertension (yes/no), use of lipid-lowering medication (yes/no), diabetes medication use (insulin, oral medication, or others), and intake of total energy, red or processed meat, fruits, and vegetables (all in quartiles).

Online Table IV Hazard ratios (95% CIs) of CVD incidence and mortality according to specific nut consumption after diabetes diagnosis with further mutually adjustment of types of nut intake*

	Specific Nut Consumption				
	<1 serving/month	<1 serving/week	1 serving/week	≥2 serving/week	*P* trend
Total CVD Incidence					
Tree nuts	1.00	1.04 (0.94, 1.14)	0.90 (0.78, 1.03)	0.79 (0.68, 0.92)	0.001
Peanuts	1.00	1.00 (0.90, 1.10)	0.99 (0.86, 1.14)	1.05 (0.91, 1.22)	0.48
CHD Incidence					
Tree nuts	1.00	1.01 (0.90, 1.13)	0.85 (0.73, 1.00)	0.75 (0.63, 0.89)	<0.001
Peanuts	1.00	1.00 (0.89, 1.11)	1.00 (0.85, 1.17)	1.08 (0.91, 1.27)	0.41
Stroke Incidence					
Tree nuts	1.00	1.12 (0.91, 1.37)	1.06 (0.81, 1.40)	0.90 (0.67, 1.20)	0.50
Peanuts	1.00	0.98 (0.80, 1.20)	0.97 (0.73, 1.30)	1.00 (0.75, 1.35)	0.91
CVD Mortality					
Tree nuts	1.00	1.00 (0.86, 1.15)	0.87 (0.71, 1.07)	0.62 (0.49, 0.78)	<0.001
Peanuts	1.00	0.93 (0.81, 1.07)	0.87 (0.70, 1.08)	0.98 (0.79, 1.21)	0.79
Cancer Mortality					
Tree nuts	1.00	0.98 (0.83, 1.16)	0.87 (0.71, 1.08)	0.75 (0.60, 0.93)	0.009
Peanuts	1.00	0.93 (0.79, 1.09)	1.17 (0.94, 1.44)	1.00 (0.80, 1.26)	0.85
All-Cause Mortality					
Tree nuts	1.00	0.92 (0.85, 1.00)	0.88 (0.79, 0.98)	0.70 (0.62, 0.78)	<0.001
Peanuts	1.00	0.91 (0.84, 0.99)	0.99 (0.89, 1.11)	0.93 (0.83, 1.05)	0.25

* Multivariable analyses were adjusted for age (continuous), diabetes duration (years), sex (men or women), Caucasian (yes/no), BMI at diabetes diagnosis (<23.0, 23.0-24.9, 25.0-29.9, 30.0-34.9, ≥35.0 kg/m^2), physical activity (<3.0, 3.0-8.9, 9.0-17.9, 18.0-26.9, ≥27.0 MET-hours/week), smoking status (never, past, current 1-14 cigarettes/day, current ≥15 cigarettes/day), alcohol consumption (0, 0.1-4.9, 5.0-14.9, ≥15.0 g/day), family history of MI or cancer (yes/no), current aspirin use (yes/no), presence of hypertension (yes/no), use of lipid-lowering medication (yes/no), diabetes medication use (insulin, oral medication, or others), and intake of total energy, red or processed meat, fruits, and vegetables (all in quartiles). Tree nuts and peanut consumption were further mutually adjusted.

Online Table V. Hazard ratios (95% CIs) of all-cause and cause-specific mortality according to total nut consumption after diabetes diagnosis when deaths occurred within 4 years after diabetes diagnosis was excluded *

	Total Nut Consumption					*P* trend
	<1 serving/month	<1 serving/week	1 serving/week	2-4 servings/week	≥5 servings/week	
CVD Mortality						
Age-adjusted model	1.00	0.85 (0.73, 0.98)	0.78 (0.67, 0.92)	0.61 (0.51, 0.72)	0.48 (0.38, 0.61)	<0.001
Multivariable model	1.00	0.98 (0.84, 1.13)	0.94 (0.79, 1.11)	0.84 (0.70, 1.00)	0.68 (0.53, 0.87)	0.001
Cancer Mortality						
Age-adjusted model	1.00	0.84 (0.71, 1.00)	0.83 (0.69, 1.00)	0.75 (0.62, 0.90)	0.71 (0.56, 0.90)	0.003
Multivariable model	1.00	0.91 (0.76, 1.09)	0.89 (0.73, 1.08)	0.87 (0.72, 1.06)	0.83 (0.65, 1.05)	0.13
All-Cause Mortality						
Age-adjusted model	1.00	0.73 (0.68, 0.80)	0.68 (0.62, 0.75)	0.55 (0.50, 0.60)	0.47 (0.42, 0.54)	<0.001
Multivariable model	1.00	0.90 (0.83, 0.98)	0.85 (0.77, 0.94)	0.78 (0.71, 0.86)	0.70 (0.61, 0.79)	<0.001

* Multivariable analyses were adjusted for age (continuous), diabetes duration (years), sex (men or women), Caucasian (yes/no), BMI at diabetes diagnosis (<23.0, 23.0-24.9, 25.0-29.9, 30.0-34.9, ≥35.0 kg/m^2), physical activity (<3.0, 3.0-8.9, 9.0-17.9, 18.0-26.9, ≥27.0 MET-hours/week), smoking status (never, past, current 1-14 cigarettes/day, current ≥15 cigarettes/day), alcohol consumption (0, 0.1-4.9, 5.0-14.9, ≥15.0 g/day), family history of MI or cancer (yes/no), current aspirin use (yes/no), presence of hypertension (yes/no), use of lipid-lowering medication (yes/no), diabetes medication use (insulin, oral medication, or others), and intake of total energy, red or processed meat, fruits, and vegetables (all in quartiles).