Supplementary Table 1—Associations between low-carbohydrate scores and all-cause mortality by the presence of diabetes symptoms and drug use among participants with type 2 diabetes

	Hazard ratios (95% CIs) of all-cause mortality per 10 points of low-carbohydrate diet scores				
	TLCDS	ALCDS	VLCDS	ULCDS	HLCDS
Presence of symptoms*					
-No	0.84(0.78,0.90)	0.92(0.86,0.99)	0.73(0.67,0.80)	1.00(0.93,1.08)	0.75(0.69,0.82)
-Yes	0.91(0.83,1.01)	0.98(0.89,1.06)	0.82(0.73,0.92)	1.03(0.93,1.13)	0.84(0.75,0.94)
P values for interaction	0.15	0.33	0.11	0.69	0.12
Diabetes drug use †					
-No drug use	0.87(0.79,0.95)	0.95(0.87,1.03)	0.79(0.71,0.88)	1.04(0.94,1.14)	0.78(0.70,0.88)
-Oral hypoglycemic drug use only	0.84(0.74,0.96)	0.98(0.87,1.10)	0.68(0.58,0.79)	1.01(0.89,1.15)	0.73(0.63,0.86)
-Insulin use only	0.77(0.63,0.96)	0.83(0.69,1.01)	0.77(0.60,1.00)	0.99(0.80,1.22)	0.74(0.57,0.96)
-Oral hypoglycemic drug and insulin use	0.77(0.58,1.03)	0.86(0.67,1.11)	0.63(0.44,0.90)	0.96(0.72,1.27)	0.64(0.44,0.92)
P values for interaction‡	0.70	0.51	0.33	0.94	0.71

TLCDS: total low-carbohydrate diet score; ALCDS: animal low-carbohydrate diet score; VLCDS: vegetable low-carbohydrate diet score; ULCDS: unhealthy low-carbohydrate diet score; HLCDS: healthy low-carbohydrate diet score.

*Data were combined from HPFS and NHS. Age (years)- and calendar year-stratified Cox model adjusted for race (white, African American, Asian, others), total energy (quintile), physical activity (quintile), alcohol intake (0, 0.1-4.9, 5.0-9.9, 10.0-14.9, 15.0-29.9, and ≥30.0 g/d), pre-diagnostic AHEI (quintile), smoking status (never smoked, past smoker, currently smoke 1-14 cigarettes per day, 15-24 cigarettes per day, or ≥25 cigarettes per day), pre-diagnostic BMI (<21.0, 21.0-22.9, 23.0-24.9, 25.0-26.9, 27.0-29.9, 30.0-32.9, 33.0-34.9, or ≥35.0 kg/m^2), multivitamin use (yes, no), family history of diabetes (yes, no), family history of myocardial infarction (yes, no), family history of cancer (yes, no), diabetes duration (0-5 years, 5-10 years, 10-15 years, >15 years), time interval between diagnosis date and latest post-diagnosis FFQ return date (months), postmenopausal hormone use (women only; premenopausal, never, former, current, or missing), oral hypoglycemic drug use (women only; yes, no), and insulin use (women only; yes, no).
†Data were from NHS only. The same covariates were adjusted except oral hypoglycemic drug use and insulin use.
‡P values for interactions were tested between each 10 points increment of LCDS and categorical diabetes drug use.

Supplementary Table 2—Pooled hazard ratios (95% CIs) associated with replacement of 5% energy from subtypes of refined carbohydrate with vegetable fat or vegetable protein

Subtypes of refined carbohydrate	5% energy substitution	
	Vegetable fat	Vegetable protein
All-cause mortality		
Potato	0.98(0.93,1.05)	0.75(0.63,0.90)
Refined grain	0.93(0.89,0.98)	0.76(0.63,0.90)
Added sugar from foods	0.90(0.85,0.95)	0.72(0.60,0.87)
Total refined carbohydrates	0.90(0.86,0.94)	0.72(0.61,0.86)
CVD mortality		
Potato	0.93(0.83,1.03)	0.86(0.62,1.18)
Refined grain	0.94(0.87,1.03)	0.88(0.64,1.21)
Added sugar from foods	0.92(0.83,1.01)	0.87(0.62,1.22)
Total refined carbohydrates	0.92(0.86,1.00)	0.86(0.62,1.18)
Cancer mortality		
Potato	1.06(0.93,1.21)	0.92(0.62,1.36)
Refined grain	1.02(0.92,1.13)	0.96(0.65,1.43)
Added sugar from foods	1.01(0.89,1.14)	0.78(0.52,1.19)
Total refined carbohydrates	0.97(0.88,1.07)	0.85(0.58,1.26)

Age (years)- and calendar year-stratified Cox model adjusted for race (white, African American, Asian, others), total energy (quintile), physical activity (quintile), alcohol intake (0, 0.1-4.9, 5.0-9.9, 10.0-14.9, 15.0-29.9, and ≥30.0 g/d), pre-diagnostic AHEI (quintile), smoking status (never smoked, past smoker, currently smoke 1-14 cigarettes per day, 15-24 cigarettes per day, or ≥25 cigarettes per day), pre-diagnostic BMI (<21.0, 21.0-22.9, 23.0-24.9, 25.0-26.9, 27.0-29.9, 30.0-32.9, 33.0-34.9, or ≥35.0 kg/m^2), multivitamin use (yes, no), family history of diabetes (yes, no), family history of myocardial infarction (yes, no), family history of cancer (yes, no), diabetes duration (0-5 years, 5-10 years, 10-15 years, >15 years), time interval between diagnosis date and latest post-diagnosis FFQ return date (months), postmenopausal hormone use (women only; premenopausal, never, former, current, or missing), oral hypoglycemic drug use (women only; yes, no), and insulin use (women only; yes, no).

Supplementary Table 3—Pooled hazard ratios (95% CIs) of mortality for low-carbohydrate scores including participants with prevalent type 2 diabetes

	Q1	Q2	Q3	Q4	Q5	P trend	Per 10 points
			All-cause mortality				
TLCDS							
Median score	9.5	14.3	18.0	21.0	25.0		
Cases/person-years	1,419/32,855	1,274/32,539	1,072/33,114	1,023/32,457	813/33,832	-	-
Age-adjusted model	1	1.02(0.94,1.10)	0.92(0.85,1.00)	0.99(0.91,1.08)	0.87(0.79,0.95)	<0.01	0.93(0.89,0.98)
Multivariable-adjusted model	1	0.94(0.86,1.02)	0.81(0.74,0.88)	0.93(0.85,1.01)	0.80(0.73,0.88)	<.0001	0.88(0.84,0.93)
ALCDS							
Median score	8.5	14.0	18.0	21.5	26.0		
Cases/person-years	1,240/32,280	1,234/32,652	1,172/33,532	1,050/33,584	905/32,749	-	-
Age-adjusted model	1	1.07(0.99,1.17)	1.10(1.01,1.19)	1.07(0.98,1.17)	1.06(0.97,1.16)	0.11	1.04(0.99,1.08)
Multivariable-adjusted model	1	0.95(0.87,1.03)	0.95(0.87,1.03)	0.96(0.88,1.05)	0.90(0.82,0.99)	0.05	0.96(0.91,1.00)
VLCDS							
Median score	10.0	13.0	16.0	18.5	22.2		
Cases/person-years	1,407/31,864	1,320/33,218	1,200/33,463	966/32,800	708/33,450	-	-
Age-adjusted model	1	0.97(0.90,1.05)	0.97(0.89,1.05)	0.81(0.75,0.89)	0.64(0.59,0.71)	<.0001	0.75(0.70,0.79)
Multivariable-adjusted model	1	0.93(0.86,1.01)	0.90(0.83,0.98)	0.81(0.74,0.89)	0.71(0.65,0.79)	<.0001	0.77(0.73,0.82)
ULCDS							
Median score	8.3	13.3	17.0	20.0	24.0		
Cases/person-years	1,164/32,815	1,212/32,950	1,177/33,561	1,080/32,265	968/33,204	-	-
Age-adjusted model	1	1.13(1.04,1.23)	1.17(1.08,1.28)	1.21(1.11,1.32)	1.21(1.11,1.33)	<.0001	1.12(1.07,1.17)
Multivariable-adjusted model	1	1.04(0.95,1.13)	1.01(0.93,1.11)	1.03(0.94,1.13)	1.05(0.96,1.16)	0.55	1.02(0.97,1.07)
HLCDS							
Median score	10.0	13.7	16.0	18.8	22.8		
Cases/person-years	1,253/32,740	1,251/32,714	1,221/32,926	1,089/33,833	787/32,583	-	-
Age-adjusted model	1	0.99(0.91,1.08)	0.97(0.89,1.05)	0.83(0.77,0.91)	0.64(0.58,0.70)	<.0001	0.74(0.70,0.79)
Multivariable-adjusted model	1	0.95(0.87,1.04)	0.91(0.83,0.99)	0.83(0.76,0.91)	0.73(0.66,0.81)	<.0001	0.79(0.75,0.85)
			CVD mortality				
TLCDS							
Median score	9.5	14.3	18.0	21.0	25.0		
Cases/person-years	456/33,740	408/33,341	334/33,796	328/33,091	257/34,347	-	-

Supplementary Table 3—Pooled hazard ratios (95% CIs) of mortality for low-carbohydrate scores including participants with prevalent type 2 diabetes

	Q1	Q2	Q3	Q4	Q5	P trend	Per 10 points
Age-adjusted model	1	1.02(0.89,1.17)	0.95(0.82,1.10)	1.03(0.89,1.20)	0.93(0.79,1.10)	0.49	0.97(0.89,1.06)
Multivariable-adjusted model	1	0.91(0.79,1.06)	0.80(0.68,0.93)	0.93(0.79,1.08)	0.84(0.71,0.99)	0.02	0.90(0.82,0.98)
ALCDS							
Median score	8.5	14.0	18.0	21.5	26.0		
Cases/person-years	387/33,057	410/33,410	370/34,276	335/34,251	281/33,321	-	-
Age-adjusted model	1	1.17(1.01,1.36)	1.16(1.00,1.34)	1.15(0.99,1.34)	1.11(0.95,1.31)	0.17	1.06(0.98,1.14)
Multivariable-adjusted model	1	0.99(0.85,1.15)	0.97(0.83,1.14)	0.98(0.84,1.16)	0.92(0.77,1.09)	0.26	0.95(0.88,1.04)
VLCDS							
Median score	10.0	13.0	16.0	18.5	22.2		
Cases/person-years	442/32,759	414/34,032	391/34,229	340/33,384	196/33,910	-	-
Age-adjusted model	1	1.01(0.88,1.16)	1.07(0.93,1.24)	0.97(0.84,1.13)	0.62(0.52,0.73)	<.0001	0.79(0.71,0.87)
Multivariable-adjusted model	1	0.94(0.81,1.08)	1.01(0.87,1.17)	0.96(0.82,1.12)	0.68(0.56,0.81)	<0.001	0.82(0.74,0.92)
ULCDS							
Median score	8.3	13.3	17.0	20.0	24.0		
Cases/person-years	373/33,531	400/33,687	379/34,290	338/32,972	293/33,834	-	-
Age-adjusted model	1	1.17(1.01,1.36)	1.17(1.01,1.36)	1.19(1.02,1.39)	1.18(1.01,1.39)	0.02	1.10(1.02,1.20)
Multivariable-adjusted model	1	1.03(0.89,1.21)	0.98(0.84,1.15)	0.95(0.80,1.12)	1.01(0.85,1.20)	0.64	0.98(0.89,1.07)
HLCDS							
Median score	10.0	13.7	16.0	18.8	22.8		
Cases/person-years	393/33,535	400/33,533	383/33,666	360/34,506	247/33,074	-	-
Age-adjusted model	1	1.01(0.88,1.17)	0.98(0.84,1.13)	0.89(0.77,1.04)	0.67(0.57,0.79)	<.0001	0.78(0.71,0.86)
Multivariable-adjusted model	1	0.96(0.82,1.12)	0.91(0.78,1.06)	0.88(0.75,1.03)	0.78(0.65,0.93)	<0.01	0.85(0.75,0.95)
			Cancer mortality				
TLCDS							
Median score	9.5	14.3	18.0	21.0	25.0		
Cases/person-years	209/33,951	228/33,488	188/33,912	225/33,173	177/34,406	-	-
Age-adjusted model	1	1.15(0.94,1.39)	1.01(0.83,1.24)	1.32(1.08,1.61)	1.03(0.83,1.27)	0.37	1.05(0.94,1.17)
Multivariable-adjusted model	1	1.10(0.90,1.34)	0.98(0.79,1.20)	1.30(1.06,1.59)	0.95(0.77,1.18)	0.81	1.01(0.91,1.13)
ALCDS							
Median score	8.5	14.0	18.0	21.5	26.0		

Supplementary Table 3—Pooled hazard ratios (95% CIs) of mortality for low-carbohydrate scores including participants with prevalent type 2 diabetes

	Q1	Q2	Q3	Q4	Q5	P trend	Per 10 points
Cases/person-years	193/33,224	208/33,570	213/34,407	217/34,347	196/33,381	-	-
Age-adjusted model	1	1.07(0.88,1.32)	1.15(0.94,1.40)	1.23(1.00,1.50)	1.24(1.01,1.53)	0.02	1.13(1.02,1.25)
Multivariable-adjusted model	1	1.05(0.86,1.29)	1.06(0.87,1.31)	1.18(0.96,1.45)	1.10(0.88,1.36)	0.26	1.06(0.96,1.18)
VLCDS							
Median score	10.0	13.0	16.0	18.5	22.2		
Cases/person-years	245/32,924	224/34,189	223/34,351	173/33,521	162/33,943	-	-
Age-adjusted model	1	0.93(0.77,1.12)	0.99(0.82,1.19)	0.79(0.64,0.96)	0.74(0.60,0.91)	<0.01	0.80(0.70,0.92)
Multivariable-adjusted model	1	0.95(0.79,1.15)	0.99(0.81,1.20)	0.82(0.67,1.01)	0.81(0.65,1.00)	0.01	0.84(0.74,0.97)
ULCDS							
Median score	8.3	13.3	17.0	20.0	24.0		
Cases/person-years	192/33,681	207/33,847	201/34,445	215/33,067	212/33,890	-	-
Age-adjusted model	1	1.09(0.89,1.33)	1.10(0.90,1.35)	1.30(1.06,1.59)	1.36(1.11,1.67)	<0.001	1.20(1.08,1.34)
Multivariable-adjusted model	1	1.06(0.86,1.30)	1.02(0.82,1.26)	1.17(0.95,1.44)	1.19(0.96,1.48)	0.10	1.10(0.98,1.24)
HLCDS							
Median score	10.0	13.7	16.0	18.8	22.8		
Cases/person-years	224/33,679	217/33,677	210/33,810	214/34,626	162/33,136	-	-
Age-adjusted model	1	0.96(0.79,1.17)	0.97(0.80,1.18)	0.91(0.75,1.10)	0.73(0.59,0.89)	<0.001	0.79(0.69,0.90)
Multivariable-adjusted model	1	0.99(0.81,1.20)	1.01(0.83,1.24)	0.99(0.81,1.21)	0.85(0.68,1.06)	0.07	0.88(0.76,1.01)

TLCDS: total low-carbohydrate diet score; ALCDS: animal low-carbohydrate diet score; VLCDS: vegetable low-carbohydrate diet score; ULCDS: unhealthy low-carbohydrate diet score; HLCDS: healthy low-carbohydrate diet score; Q1-Q5: quintile 1-5.

Age (years)- and calendar year-stratified Cox model adjusted for race (white, African American, Asian, others), total energy (quintile), physical activity (quintile), alcohol intake (0, 0.1-4.9, 5.0-9.9, 10.0-14.9, 15.0-29.9, and ≥30.0 g/d), pre-diagnostic AHEI (quintile), smoking status (never smoked, past smoker, currently smoke 1-14 cigarettes per day, 15-24 cigarettes per day, or ≥25 cigarettes per day), pre-diagnostic BMI (<21.0, 21.0-22.9, 23.0-24.9, 25.0-26.9, 27.0-29.9, 30.0-32.9, 33.0-34.9, or ≥35.0 kg/m^2), multivitamin use (yes, no), family history of diabetes (yes, no), family history of myocardial infarction (yes, no), family history of cancer (yes, no), diabetes duration (0-5 years, 5-10 years, 10-15 years, >15 years), time interval between diagnosis date and latest post-diagnosis FFQ return date (months), postmenopausal hormone use (women only; premenopausal, never, former, current, or missing), oral hypoglycemic drug use (women only; yes, no), and insulin use (women only; yes, no).

Supplementary Table 4—Pooled hazard ratios (95% CIs) of mortality for low-carbohydrate scores excluding deaths within 5 years of diabetes diagnosis

	Q1	Q2	Q3	Q4	Q5	P trend	Per 10 points
			All-cause mortality				
TLCDS							
Median score	9.5	14.5	18.0	21.1	25.5		
Cases/person-years	1,166/28,285	1,008/27,305	847/28,208	807/27,591	612/27,607	-	-
Age-adjusted model	1	1.00(0.91,1.09)	0.90(0.82,0.99)	0.97(0.88,1.07)	0.84(0.76,0.93)	<0.01	0.93(0.88,0.98)
Multivariable-adjusted model	1	0.91(0.83,1.00)	0.79(0.71,0.87)	0.89(0.81,0.99)	0.77(0.69,0.86)	<.0001	0.87(0.83,0.92)
ALCDS							
Median score	8.5	14.0	18.0	21.8	26.0		
Cases/person-years	1,007/27,567	974/27,622	955/28,257	803/28,248	701/27,303	-	-
Age-adjusted model	1	1.07(0.98,1.17)	1.11(1.01,1.22)	1.05(0.95,1.15)	1.06(0.96,1.17)	0.16	1.04(0.99,1.09)
Multivariable-adjusted model	1	0.93(0.84,1.02)	0.94(0.85,1.03)	0.91(0.82,1.01)	0.90(0.81,1.00)	0.04	0.95(0.90,1.00)
VLCDS							
Median score	10.0	13.3	16.0	18.8	22.7		
Cases/person-years	1,160/28,085	984/26,804	946/28,104	781/28,062	569/27,941	-	-
Age-adjusted model	1	0.95(0.87,1.04)	0.97(0.89,1.07)	0.82(0.74,0.90)	0.66(0.59,0.73)	<.0001	0.76(0.71,0.81)
Multivariable-adjusted model	1	0.93(0.85,1.02)	0.88(0.80,0.97)	0.80(0.73,0.89)	0.72(0.65,0.81)	<.0001	0.78(0.73,0.83)
ULCDS							
Median score	8.0	13.3	17.0	20.0	24.5		
Cases/person-years	944/28,152	969/27,310	907/28,309	857/27,579	763/27,646	-	-
Age-adjusted model	1	1.17(1.07,1.29)	1.15(1.05,1.27)	1.21(1.10,1.34)	1.23(1.11,1.36)	<.0001	1.12(1.07,1.18)
Multivariable-adjusted model	1	1.07(0.97,1.18)	1.01(0.91,1.12)	1.04(0.94,1.15)	1.05(0.94,1.17)	0.62	1.01(0.96,1.07)
HLCDS							
Median score	10.0	13.7	16.0	19.0	23.0		
Cases/person-years	1,001/27,275	976/28,596	972/27,343	863/28,310	628/27,472	-	-
Age-adjusted model	1	0.95(0.87,1.05)	0.97(0.88,1.06)	0.84(0.76,0.92)	0.63(0.57,0.70)	<.0001	0.75(0.70,0.80)
Multivariable-adjusted model	1	0.91(0.83,1.00)	0.91(0.83,1.01)	0.83(0.75,0.92)	0.71(0.63,0.79)	<.0001	0.79(0.73,0.85)
			CVD mortality				
TLCDS							
Median score	9.5	14.5	18.0	21.1	25.5		
Cases/person-years	367/28,285	297/27,305	247/28,208	244/27,591	194/27,607	-	-

Supplementary Table 4—Pooled hazard ratios (95% CIs) of mortality for low-carbohydrate scores excluding deaths within 5 years of diabetes diagnosis

	Q1	Q2	Q3	Q4	Q5	P trend	Per 10 points
Age-adjusted model	1	0.95(0.81,1.11)	0.92(0.78,1.09)	1.01(0.85,1.19)	0.98(0.81,1.18)	0.81	0.99(0.90,1.09)
Multivariable-adjusted model	1	0.84(0.71,1.00)	0.79(0.67,0.95)	0.91(0.76,1.09)	0.89(0.73,1.08)	0.13	0.92(0.83,1.02)
ALCDS							
Median score	8.5	14.0	18.0	21.8	26.0		
Cases/person-years	307/27,567	305/27,622	282/28,257	237/28,248	218/27,303	-	-
Age-adjusted model	1	1.15(0.98,1.36)	1.14(0.96,1.35)	1.09(0.91,1.30)	1.20(1.00,1.44)	0.12	1.07(0.98,1.17)
Multivariable-adjusted model	1	0.95(0.80,1.13)	0.96(0.80,1.14)	0.90(0.74,1.08)	1.00(0.82,1.21)	0.47	0.97(0.88,1.06)
VLCDS							
Median score	10.0	13.3	16.0	18.8	22.7		
Cases/person-years	345/28,085	289/26,804	304/28,104	263/28,062	148/27,941	-	-
Age-adjusted model	1	0.98(0.83,1.16)	1.14(0.97,1.35)	1.02(0.86,1.21)	0.64(0.52,0.78)	<0.001	0.82(0.73,0.92)
Multivariable-adjusted model	1	0.96(0.81,1.14)	1.05(0.88,1.25)	1.02(0.86,1.22)	0.71(0.58,0.88)	0.02	0.86(0.76,0.98)
ULCDS							
Median score	8.0	13.3	17.0	20.0	24.5		
Cases/person-years	296/28,152	309/27,310	267/28,309	250/27,579	227/27,646	-	-
Age-adjusted model	1	1.18(1.00,1.39)	1.07(0.90,1.28)	1.14(0.96,1.36)	1.23(1.03,1.48)	0.02	1.12(1.02,1.23)
Multivariable-adjusted model	1	1.04(0.87,1.23)	0.92(0.77,1.11)	0.94(0.78,1.13)	1.02(0.84,1.25)	0.88	0.99(0.89,1.10)
HLCDS							
Median score	10.0	13.7	16.0	19.0	23.0		
Cases/person-years	295/27,275	303/28,596	290/27,343	277/28,310	184/27,472	-	-
Age-adjusted model	1	1.01(0.86,1.20)	1.00(0.84,1.18)	0.93(0.78,1.10)	0.67(0.55,0.81)	<.0001	0.79(0.71,0.88)
Multivariable-adjusted model	1	0.96(0.81,1.15)	0.96(0.80,1.14)	0.91(0.76,1.10)	0.78(0.64,0.97)	0.02	0.86(0.75,0.98)
Cancer mortality							
TLCDS							
Median score	9.5	14.5	18.0	21.1	25.5		
Cases/person-years	165/28,285	187/27,305	154/28,208	179/27,591	128/27,607	-	-
Age-adjusted model	1	1.21(0.97,1.51)	1.04(0.83,1.30)	1.33(1.06,1.66)	0.98(0.77,1.25)	0.50	1.04(0.92,1.18)
Multivariable-adjusted model	1	1.14(0.91,1.43)	0.99(0.78,1.25)	1.28(1.02,1.61)	0.91(0.71,1.17)	0.94	1.00(0.88,1.14)
ALCDS							
Median score	8.5	14.0	18.0	21.8	26.0		

Supplementary Table 4—Pooled hazard ratios (95% CIs) of mortality for low-carbohydrate scores excluding deaths within 5 years of diabetes diagnosis

	Q1	Q2	Q3	Q4	Q5	P trend	Per 10 points
Cases/person-years	158/27,567	162/27,622	175/28,257	171/28,248	147/27,303	-	-
Age-adjusted model	1	1.01(0.80,1.27)	1.18(0.95,1.48)	1.24(0.98,1.55)	1.14(0.90,1.45)	0.03	1.13(1.01,1.26)
Multivariable-adjusted model	1	0.98(0.77,1.23)	1.08(0.86,1.36)	1.15(0.91,1.46)	1.03(0.81,1.32)	0.33	1.06(0.94,1.19)
VLCDS							
Median score	10.0	13.3	16.0	18.8	22.7		
Cases/person-years	201/28,085	170/26,804	173/28,104	137/28,062	132/27,941	-	-
Age-adjusted model	1	0.95(0.77,1.18)	0.99(0.80,1.22)	0.75(0.60,0.94)	0.78(0.62,0.98)	<0.01	0.81(0.70,0.93)
Multivariable-adjusted model	1	0.97(0.78,1.21)	0.92(0.74,1.15)	0.75(0.60,0.95)	0.85(0.67,1.08)	0.02	0.83(0.71,0.97)
ULCDS							
Median score	8.0	13.3	17.0	20.0	24.5		
Cases/person-years	149/28,152	166/27,310	161/28,309	172/27,579	165/27,646	-	-
Age-adjusted model	1	1.18(0.94,1.49)	1.16(0.92,1.46)	1.38(1.10,1.74)	1.40(1.11,1.76)	<0.01	1.20(1.07,1.36)
Multivariable-adjusted model	1	1.13(0.89,1.43)	1.06(0.84,1.35)	1.22(0.96,1.55)	1.25(0.97,1.60)	0.09	1.12(0.98,1.27)
HLCDS							
Median score	10.0	13.7	16.0	19.0	23.0		
Cases/person-years	174/27,275	176/28,596	170/27,343	164/28,310	129/27,472	-	-
Age-adjusted model	1	0.95(0.76,1.18)	1.00(0.80,1.25)	0.90(0.72,1.12)	0.71(0.56,0.90)	<0.001	0.79(0.69,0.91)
Multivariable-adjusted model	1	0.91(0.73,1.15)	0.98(0.78,1.23)	0.92(0.73,1.16)	0.81(0.63,1.04)	0.04	0.85(0.73,1.00)

TLCDS: total low-carbohydrate diet score; ALCDS: animal low-carbohydrate diet score; VLCDS: vegetable low-carbohydrate diet score; ULCDS: unhealthy low-carbohydrate diet score; HLCDS: healthy low-carbohydrate diet score; Q1-Q5: quintile 1-5.

Age (years)- and calendar year-stratified Cox model adjusted for race (white, African American, Asian, others), total energy (quintile), physical activity (quintile), alcohol intake (0, 0.1-4.9, 5.0-9.9, 10.0-14.9, 15.0-29.9, and ≥30.0 g/d), pre-diagnostic AHEI (quintile), smoking status (never smoked, past smoker, currently smoke 1-14 cigarettes per day, 15-24 cigarettes per day, or ≥25 cigarettes per day), pre-diagnostic BMI (<21.0, 21.0-22.9, 23.0-24.9, 25.0-26.9, 27.0-29.9, 30.0-32.9, 33.0-34.9, or ≥35.0 kg/m^2), multivitamin use (yes, no), family history of diabetes (yes, no), family history of myocardial infarction (yes, no), family history of cancer (yes, no), diabetes duration (0-5 years, 5-10 years, 10-15 years, >15 years), time interval between diagnosis date and latest post-diagnosis FFQ return date (months), postmenopausal hormone use (women only; premenopausal, never, former, current, or missing), oral hypoglycemic drug use (women only; yes, no), and insulin use (women only; yes, no).

Supplementary Table 5—Pooled hazard ratios (95% CIs) of mortality according to changes in low-carbohydrate diet score from pre-diabetes to post-diabetes diagnosis adjusting for change of time-varying covariates

	Q1	Q2	Q3	Q4	Q5	P trend	Per 10 points increase
			All-cause mortality				
TLCDS							
Median score	-8.0	-2.3	1.0	5.0	11.0		
Cases/person-years	1,096/28,317	882/27,358	905/28,232	895/28,021	817/27,479	-	-
Age-adjusted model	1	0.86(0.79,0.95)	0.88(0.80,0.96)	0.87(0.79,0.96)	0.86(0.78,0.94)	<0.001	0.91(0.86,0.96)
Multivariable-adjusted model	1	0.87(0.79,0.96)	0.87(0.79,0.97)	0.83(0.74,0.93)	0.72(0.64,0.83)	<.0001	0.87(0.82,0.92)
ALCDS							
Median score	-9.0	-3.0	1.0	5.0	11.8		
Cases/person-years	1,001/27,692	885/27,924	882/27,868	922/27,971	905/27,951	-	-
Age-adjusted model	1	0.91(0.83,1.00)	0.91(0.83,1.00)	0.92(0.84,1.01)	0.96(0.87,1.05)	0.57	1.01(0.96,1.07)
Multivariable-adjusted model	1	0.96(0.86,1.06)	0.91(0.82,1.01)	0.93(0.83,1.04)	0.89(0.79,1.01)	0.03	0.94(0.89,1.00)
VLCDS							
Median score	-6.0	-2.0	1.0	4.0	8.7		
Cases/person-years	1,106/28,354	949/27,148	916/28,661	838/27,014	786/28,229	-	-
Age-adjusted model	1	0.96(0.88,1.06)	0.90(0.82,0.98)	0.93(0.85,1.02)	0.86(0.78,0.94)	<.0001	0.75(0.70,0.80)
Multivariable-adjusted model	1	0.94(0.85,1.04)	0.86(0.78,0.96)	0.87(0.77,0.97)	0.71(0.63,0.81)	<.0001	0.79(0.73,0.85)
ULCDS							
Median score	-8.5	-3.0	0	3.7	9.0		
Cases/person-years	906/27,539	883/27,758	940/28,567	889/27,731	977/27,811	-	-
Age-adjusted model	1	0.95(0.86,1.05)	0.97(0.88,1.07)	0.95(0.86,1.05)	1.04(0.94,1.14)	<0.001	1.11(1.04,1.17)
Multivariable-adjusted model	1	1.00(0.90,1.11)	1.00(0.90,1.11)	1.00(0.89,1.12)	1.01(0.89,1.14)	0.69	1.01(0.95,1.07)
HLCDS							
Median score	-5.3	-1.0	2.0	4.7	9.0		
Cases/person-years	1,086/27,630	1,011/28,591	874/27,396	846/27,908	778/27,881	-	-
Age-adjusted model	1	0.96(0.87,1.05)	0.93(0.85,1.02)	0.89(0.81,0.98)	0.86(0.78,0.95)	<.0001	0.74(0.70,0.79)
Multivariable-adjusted model	1	0.91(0.83,1.01)	0.90(0.81,1.00)	0.82(0.73,0.91)	0.75(0.66,0.85)	<.0001	0.81(0.75,0.87)
			CVD mortality				
TLCDS							
Median score	-8.0	-2.3	1.0	5.0	11.0		

Supplementary Table 5—Pooled hazard ratios (95% CIs) of mortality according to changes in low-carbohydrate diet score from pre-diabetes to post-diabetes diagnosis adjusting for change of time-varying covariates
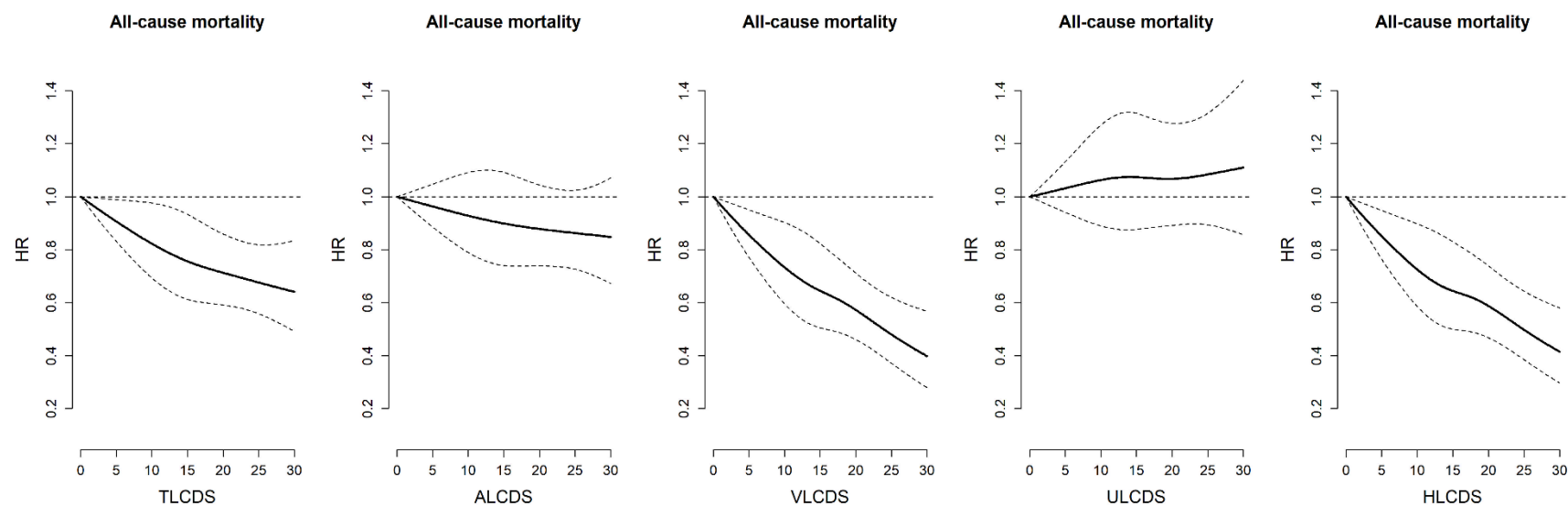
	Q1	Q2	Q3	Q4	Q5	P trend	Per 10 points increase
Cases/person-years	329/28,317	271/27,358	268/28,232	290/28,021	231/27,479	-	-
Age-adjusted model	1	0.90(0.76,1.07)	0.87(0.73,1.03)	0.96(0.82,1.14)	0.84(0.70,1.00)	0.21	0.94(0.85,1.04)
Multivariable-adjusted model	1	0.98(0.82,1.17)	0.93(0.77,1.12)	0.97(0.79,1.18)	0.80(0.63,1.02)	0.04	0.90(0.81,1.00)
ALCDS							
Median score	-9.0	-3.0	1.0	5.0	11.8		
Cases/person-years	306/27,692	278/27,924	247/27,868	290/27,971	268/27,951	-	-
Age-adjusted model	1	0.98(0.83,1.16)	0.82(0.69,0.98)	0.95(0.81,1.13)	0.96(0.81,1.14)	0.57	1.03(0.94,1.13)
Multivariable-adjusted model	1	1.03(0.86,1.24)	0.83(0.68,1.00)	0.99(0.80,1.21)	0.92(0.73,1.15)	0.28	0.95(0.86,1.05)
VLCDS							
Median score	-6.0	-2.0	1.0	4.0	8.7		
Cases/person-years	333/28,354	283/27,148	277/28,661	264/27,014	232/28,229	-	-
Age-adjusted model	1	0.98(0.83,1.16)	0.93(0.78,1.10)	1.00(0.84,1.18)	0.91(0.76,1.09)	<0.001	0.80(0.71,0.90)
Multivariable-adjusted model	1	0.98(0.81,1.17)	0.95(0.79,1.15)	0.97(0.80,1.19)	0.85(0.68,1.08)	0.02	0.85(0.75,0.97)
ULCDS							
Median score	-8.5	-3.0	0	3.7	9.0		
Cases/person-years	268/27,539	270/27,758	288/28,567	266/27,731	297/27,811	-	-
Age-adjusted model	1	1.01(0.84,1.20)	1.00(0.84,1.19)	0.93(0.78,1.11)	1.06(0.89,1.26)	0.11	1.09(0.98,1.21)
Multivariable-adjusted model	1	1.05(0.87,1.27)	1.02(0.84,1.23)	0.95(0.77,1.17)	0.99(0.79,1.24)	0.84	0.99(0.89,1.10)
HLCDS							
Median score	-5.3	-1.0	2.0	4.7	9.0		
Cases/person-years	349/27,630	292/28,591	244/27,396	275/27,908	229/27,881	-	-
Age-adjusted model	1	0.90(0.77,1.07)	0.83(0.70,0.99)	0.96(0.82,1.14)	0.84(0.71,1.01)	<.0001	0.78(0.69,0.88)
Multivariable-adjusted model	1	0.85(0.72,1.02)	0.82(0.68,0.99)	0.93(0.77,1.14)	0.81(0.65,1.02)	0.02	0.86(0.75,0.98)
Cancer mortality							
TLCDS							
Median score	-8.0	-2.3	1.0	5.0	11.0		
Cases/person-years	190/28,317	173/27,358	177/28,232	179/28,021	162/27,479	-	-
Age-adjusted model	1	0.96(0.78,1.20)	0.96(0.78,1.19)	0.96(0.77,1.18)	0.93(0.75,1.16)	0.90	1.01(0.89,1.14)
Multivariable-adjusted model	1	0.97(0.77,1.22)	0.98(0.77,1.24)	1.01(0.78,1.30)	0.98(0.73,1.31)	0.94	1.01(0.88,1.14)

Supplementary Table 5—Pooled hazard ratios (95% CIs) of mortality according to changes in low-carbohydrate diet score from pre-diabetes to post-diabetes diagnosis adjusting for change of time-varying covariates

	Q1	Q2	Q3	Q4	Q5	P trend	Per 10 points increase
ALCDS							
Median score	-9.0	-3.0	1.0	5.0	11.8		
Cases/person-years	182/27,692	174/27,924	180/27,868	173/27,971	172/27,951	-	-
Age-adjusted model	1	0.92(0.74,1.15)	1.00(0.80,1.23)	0.96(0.77,1.20)	0.94(0.76,1.17)	0.15	1.09(0.97,1.22)
Multivariable-adjusted model	1	0.98(0.78,1.23)	1.04(0.82,1.31)	1.05(0.81,1.35)	1.07(0.80,1.43)	0.56	1.04(0.92,1.17)
VLCDS							
Median score	-6.0	-2.0	1.0	4.0	8.7		
Cases/person-years	189/28,354	199/27,148	165/28,661	163/27,014	165/28,229	-	-
Age-adjusted model	1	1.17(0.95,1.43)	0.91(0.73,1.13)	1.01(0.81,1.25)	0.96(0.77,1.19)	<0.01	0.79(0.68,0.91)
Multivariable-adjusted model	1	1.16(0.93,1.45)	0.89(0.70,1.13)	1.00(0.77,1.28)	0.86(0.66,1.14)	0.14	0.89(0.76,1.04)
ULCDS							
Median score	-8.5	-3.0	0	3.7	9.0		
Cases/person-years	186/27,539	165/27,758	183/28,567	163/27,731	184/27,811	-	-
Age-adjusted model	1	0.86(0.69,1.07)	0.94(0.76,1.16)	0.87(0.69,1.08)	0.96(0.77,1.18)	0.03	1.15(1.02,1.31)
Multivariable-adjusted model	1	0.92(0.73,1.16)	1.01(0.80,1.27)	1.01(0.78,1.29)	1.05(0.80,1.38)	0.30	1.07(0.94,1.22)
HLCDS							
Median score	-5.3	-1.0	2.0	4.7	9.0		
Cases/person-years	180/27,630	198/28,591	161/27,396	177/27,908	165/27,881	-	-
Age-adjusted model	1	1.07(0.87,1.32)	0.98(0.79,1.22)	1.05(0.85,1.30)	0.98(0.79,1.23)	<0.01	0.79(0.68,0.92)
Multivariable-adjusted model	1	1.01(0.81,1.27)	0.98(0.77,1.25)	1.05(0.81,1.35)	0.92(0.70,1.22)	0.35	0.93(0.79,1.09)

TLCDS: total low-carbohydrate diet score; ALCDS: animal low-carbohydrate diet score; VLCDS: vegetable low-carbohydrate diet score; ULCDS: unhealthy low-carbohydrate diet score; HLCDS: healthy low-carbohydrate diet score; Q1-Q5: quintile 1-5.

Age (years)- and calendar year-stratified Cox model adjusted for race (white, African American, Asian, others), pre-diagnostic LCDS (continuous), pre-post change of total energy (quintile), pre-post change of physical activity change (quintile), pre-post change of alcohol intake change (quintile), pre-post change of AHEI (quintile), pre-post change of smoking status (remain noncurrent smoker; current smoker to noncurrent smoker; remain current smoker; noncurrent smoker to current smoker), pre-post change of BMI (decreased, unchanged, increased), multivitamin use (yes, no), family history of diabetes (yes, no), family history of myocardial infarction (yes, no), family history of cancer (yes, no), diabetes duration (0-5 years, 5-10 years, 10-15 years, >15 years), time interval between diagnosis date and latest post-diagnosis FFQ return date (months), postmenopausal hormone use (women only; premenopausal, never, former, current, or missing), oral hypoglycemic drug use (women only; yes, no), and insulin use (women only; yes, no).

Supplementary Figure 1—Spline regressions for low-carbohydrate diet scores and all-cause mortality.

Age (years)- and calendar year-stratified Cox model adjusted for race (white, African American, Asian, others), pre-diagnostic LCDS (continuous), pre-post change of total energy (quintile), pre-post change of physical activity change (quintile), pre-post change of alcohol intake change (quintile), pre-post change of AHEI (quintile), smoking status (never smoked, past smoker, currently smoke 1-14 cigarettes per day, 15-24 cigarettes per day, or ≥25 cigarettes per day), pre-diagnostic BMI (decreased, unchanged, increased), multivitamin use (yes, no), family history of diabetes (yes, no), family history of myocardial infarction (yes, no), family history of cancer (yes, no), diabetes duration (0-5 years, 5-10 years, 10-15 years, >15 years), time interval between diagnosis date and latest post-diagnosis FFQ return date (months), postmenopausal hormone use (women only; premenopausal, never, former, current, or missing), oral hypoglycemic drug use (women only; yes, no), and insulin use (women only; yes, no).

P values for non-linearity were 0.72 for LCDS, 0.93 for ALCDS, 0.72 for VLCDS, 0.87 for ULCDS, 0.51 for HLCDS.

TLCDS: total low-carbohydrate diet score; ALCDS: animal low-carbohydrate diet score; VLCDS: vegetable low-carbohydrate diet score; ULCDS: unhealthy low-carbohydrate diet score; HLCDS: healthy low-carbohydrate diet score.