

## SUPPLEMENTARY TABLES

**Supplementary Table 1. Estimates of relative risk and 95% confidence intervals (CIs) of diseases of interest for one medium serving/day increase in pasta meal intake variables**

HR (95% CI)		Residual Total Pasta Meal Intake	Pasta/100GL Ratio	Pasta/1000kcal Energy Ratio	Residual Total Spaghetti Meal Intake
Diabetes	Model 1 <sup>a</sup>	1.11 (1.01, 1.22)	1.28 (1.15, 1.41)	1.22 (1.04, 1.43)	0.98 (0.88, 1.10)
	Model 2 <sup>b</sup>	1.08 (0.98, 1.18)	1.10 (0.99, 1.22)	1.16 (0.99, 1.37)	1.02 (0.92, 1.14)
	Model 3 <sup>c</sup>	1.06 (0.97, 1.17)	1.09 (0.98, 1.21)	1.12 (0.95, 1.32)	1.04 (0.94, 1.16)
CHD	Model 1 <sup>a</sup>	0.95 (0.80, 1.13)	1.01 (0.84, 1.21)	0.84 (0.63, 1.12)	0.83 (0.68, 1.01)
	Model 2 <sup>b</sup>	0.94 (0.80, 1.12)	0.89 (0.74, 1.07)	0.82 (0.61, 1.09)	0.86 (0.70, 1.05)
	Model 3 <sup>c</sup>	0.93 (0.77, 1.11)	0.90 (0.74, 1.09)	0.79 (0.59, 1.07)	0.88 (0.72, 1.09)
Stroke	Model 1 <sup>a</sup>	0.69 (0.56, 0.85)	0.73 (0.58, 0.90)	0.54 (0.39, 0.76)	0.59 (0.46, 0.75)
	Model 2 <sup>b</sup>	0.70 (0.57, 0.86)	0.67 (0.53, 0.83)	0.54 (0.38, 0.76)	0.61 (0.48, 0.78)
	Model 3 <sup>c</sup>	0.71 (0.58, 0.88)	0.69 (0.55, 0.86)	0.56 (0.31, 0.78)	0.64 (0.50, 0.82)
ASCVD	Model 1 <sup>a</sup>	0.85 (0.74, 0.97)	0.89 (0.77, 1.02)	0.72 (0.58, 0.90)	0.74 (0.63, 0.87)
	Model 2 <sup>b</sup>	0.84 (0.74, 0.97)	0.80 (0.69, 0.93)	0.71 (0.57, 0.88)	0.76 (0.65, 0.89)
	Model 3 <sup>c</sup>	0.85 (0.74, 0.98)	0.82 (0.70, 0.95)	0.72 (0.57, 0.90)	0.80 (0.68, 0.94)

<sup>a</sup> Model 1 adjusted for age, race, region, and study indicators

<sup>b</sup> Model 2 adjusted for age, race, region, study indicators, BMI, total energy intake, and percent energy from carbohydrates

<sup>c</sup> Model 3 adjusted for age, race, region, study indicators, BMI, total energy intake, percent energy from carbohydrates, smoking status, alcohol consumption, physical activity, healthy eating index (HEI) 2005, and family history of CHD and stroke.

**Supplementary Table 2. Estimates of relative risk and 95% confidence intervals (CIs) of diseases of interest with additional adjustment of potential dietary confounders**

	Residual Total Pasta Meal Intake Quartiles				P-value for trend
	Q1	Q2	Q3	Q4	
HR (95% CI) for risk of <b>diabetes</b>					
Model 3*	1.00	0.97 (0.92, 1.03)	1.00 (0.94, 1.05)	1.02 (0.96, 1.07)	0.328
Model 3 + fiber	1.00	0.97 (0.92, 1.03)	0.99 (0.94, 1.05)	1.02 (0.96, 1.08)	0.294
Model 3 + total sugar	1.00	0.97 (0.92, 1.03)	1.00 (0.94, 1.06)	1.03 (0.97, 1.09)	0.195
Model 3 + added sugar	1.00	0.97 (0.92, 1.03)	1.00 (0.94, 1.06)	1.02 (0.96, 1.08)	0.263
Model 3 + non-whole grain	1.00	0.97 (0.92, 1.03)	1.00 (0.94, 1.05)	1.02 (0.96, 1.08)	0.306
Model 3 + whole grain	1.00	0.97 (0.91, 1.02)	0.99 (0.93, 1.05)	1.01 (0.95, 1.06)	0.537
Model 3 + total cheese	1.00	0.97 (0.92, 1.03)	1.00 (0.94, 1.05)	1.02 (0.96, 1.07)	0.315
Model 3 + total tomato	1.00	0.97 (0.91, 1.02)	0.99 (0.93, 1.05)	1.00 (0.95, 1.06)	0.575
Model 3 + frequency of eating vegetables	1.00	0.97 (0.92, 1.03)	1.00 (0.94, 1.06)	1.02 (0.96, 1.08)	0.288
HR (95% CI) for risk of <b>CHD</b>					
Model 3*	1.00	0.99 (0.90, 1.09)	1.02 (0.93, 1.12)	0.91 (0.83, 1.00)	0.058
Model 3 + fiber	1.00	0.99 (0.90, 1.09)	1.02 (0.93, 1.12)	0.91 (0.83, 1.00)	0.061
Model 3 + total sugar	1.00	0.99 (0.90, 1.09)	1.02 (0.93, 1.13)	0.92 (0.83, 1.01)	0.078
Model 3 + added sugar	1.00	0.99 (0.90, 1.09)	1.02 (0.93, 1.12)	0.92 (0.83, 1.01)	0.072
Model 3 + non-whole grain	1.00	0.99 (0.90, 1.09)	1.03 (0.93, 1.13)	0.92 (0.83, 1.02)	0.094
Model 3 + whole grain	1.00	0.99 (0.90, 1.08)	1.02 (0.93, 1.12)	0.91 (0.83, 1.00)	0.052
Model 3 + total cheese	1.00	0.99 (0.90, 1.09)	1.02 (0.93, 1.12)	0.91 (0.83, 1.00)	0.060
Model 3 + total tomato	1.00	0.99 (0.90, 1.08)	1.02 (0.92, 1.12)	0.90 (0.82, 1.00)	0.040
Model 3 + frequency of eating vegetables	1.00	0.99 (0.90, 1.08)	1.02 (0.93, 1.12)	0.91 (0.82, 1.00)	0.042
HR (95% CI) for risk of <b>stroke</b>					
Model 3*	1.00	0.97 (0.88, 1.08)	1.00 (0.91, 1.11)	0.84 (0.75, 0.93)	0.001
Model 3 + fiber	1.00	0.97 (0.88, 1.08)	1.00 (0.91, 1.11)	0.84 (0.75, 0.93)	0.001
Model 3 + total sugar	1.00	0.98 (0.89, 1.09)	1.01 (0.91, 1.12)	0.85 (0.76, 0.95)	0.004
Model 3 + added sugar	1.00	0.98 (0.88, 1.08)	1.01 (0.91, 1.12)	0.84 (0.75, 0.94)	0.002
Model 3 + non-whole grain	1.00	0.98 (0.88, 1.08)	1.01 (0.91, 1.12)	0.84 (0.76, 0.94)	0.002
Model 3 + whole grain	1.00	0.97 (0.88, 1.08)	1.00 (0.91, 1.11)	0.84 (0.75, 0.93)	0.001

Model 3 + total cheese	1.00	0.98 (0.88, 1.08)	1.01 (0.91, 1.11)	0.84 (0.75, 0.93)	0.001
Model 3 + total tomato	1.00	0.98 (0.88, 1.08)	1.01 (0.91, 1.12)	0.84 (0.75, 0.94)	0.002
Model 3 + frequency of eating vegetables	1.00	0.97 (0.88, 1.08)	1.00 (0.91, 1.11)	0.83 (0.75, 0.93)	0.001
<b>HR (95% CI) for risk of <u>ASCVD</u></b>					
Model 3*	1.00	0.99 (0.92, 1.06)	1.03 (0.96, 1.11)	0.89 (0.83, 0.96)	0.002
Model 3 + fiber	1.00	0.98 (0.92, 1.06)	1.03 (0.96, 1.10)	0.89 (0.83, 0.96)	0.002
Model 3 + total sugar	1.00	0.99 (0.92, 1.06)	1.04 (0.96, 1.11)	0.90 (0.83, 0.97)	0.006
Model 3 + added sugar	1.00	0.99 (0.92, 1.06)	1.03 (0.96, 1.11)	0.90 (0.83, 0.97)	0.003
Model 3 + non-whole grain	1.00	0.99 (0.92, 1.06)	1.04 (0.96, 1.11)	0.90 (0.84, 0.97)	0.006
Model 3 + whole grain	1.00	0.99 (0.92, 1.06)	1.03 (0.96, 1.11)	0.89 (0.83, 0.96)	0.002
Model 3 + total cheese	1.00	0.99 (0.92, 1.06)	1.03 (0.96, 1.11)	0.89 (0.83, 0.96)	0.002
Model 3 + total tomato	1.00	0.99 (0.92, 1.06)	1.03 (0.96, 1.10)	0.89 (0.83, 0.96)	0.002
Model 3 + frequency of eating vegetables	1.00	0.98 (0.92, 1.06)	1.03 (0.96, 1.10)	0.89 (0.82, 0.95)	0.001

\* Model 3 adjusted for age, race, region, study indicators, BMI, total energy intake, percent energy from carbohydrates, smoking status, alcohol consumption, physical activity, healthy eating index (HEI) 2005, and family history of the respective outcome.

**Supplementary Table 3. Estimates of relative risk and 95% CIs of diseases of interest according to quartiles of residual spaghetti meal intake from Model 3\***

	Residual Spaghetti Meal Intake Quartiles				P-value for trend
	Q1	Q2	Q3	Q4	
Diabetes	1.00	0.98 (0.93, 1.04)	1.01 (0.95, 1.07)	1.02 (0.97, 1.08)	0.223
CHD	1.00	0.99 (0.90, 1.08)	0.98 (0.89, 1.08)	0.92 (0.84, 1.02)	0.084
Stroke	1.00	0.98 (0.89, 1.08)	1.01 (0.91, 1.12)	0.84 (0.76, 0.94)	0.001
ASCVD	1.00	0.98 (0.92, 1.06)	1.01 (0.94, 1.08)	0.90 (0.84, 0.97)	0.005

\* Model adjusted for age, race, region, study indicators, BMI, total energy intake, percent energy from carbohydrates, smoking status, alcohol consumption, physical activity, HEI 2005, and family history of the respective outcome.

**Supplementary Table 4. Estimates of relative risk and 95% CIs of diseases of interest according to quartiles of residual pasta meal intake from Model 3 using age as time-scale**

	Residual Total Pasta Meal Intake Quartiles				P-value for trend
	Q1	Q2	Q3	Q4	
	HR (95% CI) for risk of <b>diabetes</b>				
Model 1 <sup>a</sup>	1.00	0.92 (0.87, 0.97)	0.94 (0.89, 1.00)	1.01 (0.96, 1.06)	0.230
Model 2 <sup>b</sup>	1.00	0.97 (0.92, 1.03)	1.00 (0.94, 1.06)	1.02 (0.97, 1.08)	0.191
Model 3 <sup>c</sup>	1.00	0.97 (0.91, 1.02)	0.99 (0.93, 1.05)	1.01 (0.96, 1.07)	0.399
	HR (95% CI) for risk of <b>CHD</b>				
Model 1 <sup>a</sup>	1.00	1.01 (0.92, 1.09)	1.03 (0.94, 1.12)	0.94 (0.86, 1.03)	0.188
Model 2 <sup>b</sup>	1.00	1.01 (0.93, 1.11)	1.03 (0.94, 1.13)	0.94 (0.86, 1.03)	0.139
Model 3 <sup>c</sup>	1.00	0.98 (0.90, 1.08)	1.01 (0.92, 1.11)	0.91 (0.82, 1.00)	0.050
	HR (95% CI) for risk of <b>stroke</b>				
Model 1 <sup>a</sup>	1.00	0.95 (0.87, 1.05)	0.97 (0.89, 1.07)	0.82 (0.74, 0.91)	<0.001
Model 2 <sup>b</sup>	1.00	0.97 (0.88, 1.07)	0.99 (0.90, 1.09)	0.83 (0.75, 0.92)	<0.001
Model 3 <sup>c</sup>	1.00	0.97 (0.87, 1.07)	1.00 (0.90, 1.10)	0.83 (0.75, 0.92)	0.001
	HR (95% CI) for risk of <b>ASCVD</b>				
Model 1 <sup>a</sup>	1.00	0.98 (0.92, 1.04)	1.01 (0.95, 1.08)	0.90 (0.84, 0.96)	0.003
Model 2 <sup>b</sup>	1.00	0.99 (0.92, 1.06)	1.02 (0.95, 1.09)	0.90 (0.84, 0.96)	0.002
Model 3 <sup>c</sup>	1.00	0.98 (0.91, 1.05)	1.02 (0.95, 1.10)	0.89 (0.82, 0.95)	0.001

<sup>a</sup> Model 1 adjusted for age, race, region, and study indicators

<sup>b</sup> Model 2 adjusted for age, race, region, study indicators, BMI, total energy intake, and percent energy from carbohydrates

<sup>c</sup> Model 3 adjusted for age, race, region, study indicators, BMI, total energy intake, percent energy from carbohydrates, smoking status, alcohol consumption, physical activity, HEI 2005, and family history of the respective outcome.