Supplementary table 1 Associations between whole grain intake and nephrolithiasis by sex including participants with extreme total energy intake

	Categories of whole grains intake			
	Level 1	Level 2	Level 3	*P* for trend [a]
All participants (*n* = 741)				
Intake of whole grains (range, g/1000kal)	0, 4.174	4.183, 12.609	12.657, 212.656	
Crude model	1.00 (reference)	0.61 (0.42, 0.87) [b]	0.32 (0.21, 0.48)	< 0.001
Model 2	1.00 (reference)	0.56 (0.38, 0.81)	0.32 (0.21, 0.48)	< 0.001
Model 3	1.00 (reference)	**0.66 (0.35, 0.97)**	**0.57 (0.27, 0.82)**	**0.017**
Men (*n* = 498)				
Intake of whole grains (range, g/1000kal)	0, 3.822	3.837, 11.831	11.855, 212.656	
Crude model	1.00 (reference)	0.73 (0.47, 1.13)	0.20 (0.11, 0.35)	< 0.001
Model 2	1.00 (reference)	0.65 (0.41, 1.05)	0.20 (0.11, 0.35)	< 0.001
Model 3	1.00 (reference)	**0.88 (0.37, 0.99)**	**0.70 (0.40, 0.87)**	**0.020**
Women (*n* = 243)				
Intake of whole grains (range, g/1000kal)	0, 5.027	5.035, 14.077	14.176, 96.376	
Crude model	1.00 (reference)	0.55 (0.29, 1.05)	0.55 (0.28, 1.08)	0.138
Model 2	1.00 (reference)	0.49 (0.25, 0.96)	0.56 (0.27, 1.14)	0.183
Model 3	1.00 (reference)	**0.46 (0.20, 0.89)**	**0.50 (0.25, 0.81)**	**0.045**

[a] Multivariate conditional logistic regression [b] Odds ratio (95% confidence interval) (all such values)

Model 2 adjusted for age, sex, and BMI

Model 3 adjusted for age, sex, BMI, income, educational level, smoking stastus, drinking status, water drinking per day, and total energy, protein, fat, coffee, tea, beverages, and calcium intake.

Supplementary table 2 Associations between refined grain intake and nephrolithiasis by sex including participants with extreme total energy intake

	Categories of refined grains intake	*P* for trend [a]

	Level 1	Level 2	Level 3	
All participants (*n* = 741)				
Intake of refined grains (range, g/1000kal)	0, 286.706	286.770, 414.630	414.940, 903.362	
Crude model	1.00 (reference)	3.09 (1.88, 5.06) [b]	9.24 (5.74, 14.87)	< 0.001
Model 2	1.00 (reference)	3.09 (1.84, 5.17)	8.98 (5.46, 14.77)	< 0.001
Model 3	1.00 (reference)	**3.63 (1.59, 8.30)**	**3.42 (1.42, 8.20)**	**0.006**
Men (*n* = 498)				
Intake of refined grains (range, g/1000kal)	0, 286.771	288.566, 406.800	407.330, 874.591	
Crude model	1.00 (reference)	3.28 (1.77, 6.08)	9.38 (5.23, 16.82)	< 0.001
Model 2	1.00 (reference)	3.29 (1.73, 6.26)	9.22 (5.01, 16.98)	< 0.001
Model 3	1.00 (reference)	**3.55 (1.22, 10.33)**	**4.29 (1.44, 12.74)**	**<0.010**
Women(*n* = 243)				
Intake of refined grains (range, g/1000kal)	8.565, 284.437	284.895, 424.273	424.410, 903.362	
Crude model	1.00 (reference)	2.73 (1.14, 6.51)	11.90 (4.90, 28.90)	< 0.001
Model 2	1.00 (reference)	2.90 (1.16, 7.23)	11.09 (4.40, 28.00)	< 0.001
Model 3	1.00 (reference)	5.43 (1.63, 16.92)	3.17 (1.22, 15.97)	0.033

[a] Multivariate conditional logistic regression [b] Odds ratio (95% confidence interval) (all such values)

Model 2 adjusted for age, sex, and BMI

Model 3 adjusted for age, sex, BMI, income, educational level, smoking stastus, drinking status, water drinking per day, and total energy, protein, fat, coffee, tea, beverages, and calcium intake.

Supplementary table 3 Associations between whole grain intake and nephrolithiasis by sex excluding participants with extreme grain intake

	Categories of whole grains intake			
	Level 1	Level 2	Level 3	*P* for trend [a]
All participants (*n* = 634)				
Intake of whole grains (range, g/1000kal)	0, 3.978	3.990, 12.508	12.564, 128.191	
Crude model	1.00 (reference)	0.63 (0.42, 0.94) [b]	0.33 (0.21, 0.52)	< 0.001
Model 2	1.00 (reference)	0.56 (0.37, 0.86)	0.32 (0.20, 0.51)	< 0.001
Model 3	1.00 (reference)	**0.69 (0.33, 0.97)**	**0.53 (0.22, 0.86)**	**0.015**
Men (*n* = 433)				
Intake of whole grains (range, g/1000kal)	0, 3.745	3.788, 11.648	11.697, 128.191	
Crude model	1.00 (reference)	0.97 (0.59, 1.58)	0.23 (0.13, 0.42)	< 0.001
Model 2	1.00 (reference)	0.84 (0.50, 1.41)	0.22 (0.12 0.41)	< 0.001
Model 3	1.00 (reference)	**0.73 (0.42, 0.94)**	**0.70 (0.49, 0.97)**	**0.033**
Women (*n* = 201)				
Intake of whole grains (range, g/1000kal)	0, 4.941	5.027, 14.077	14.176, 77.384	
Crude model	1.00 (reference)	0.40 (0.19, 0.83)	0.49 (0.22, 1.07)	0.165
Model 2	1.00 (reference)	0.32 (0.15, 0.71)	0.49 (0.22, 1.12)	0.216
Model 3	1.00 (reference)	**0.42 (0.21, 0.88)**	**0.48 (0.20, 0.83)**	**0.033**

[a] Multivariate conditional logistic regression

[b] Odds ratio (95% confidence interval) (all such values)

Model 2 adjusted for age, sex, and BMI

Model 3 adjusted for age, sex, BMI, income, educational level, smoking stastus, drinking status, water drinking per day, and total energy, protein, fat, coffee, tea, beverages, and calcium intake.

Supplementary table 4 Associations between refined grain intake and nephrolithiasis by sex excluding participants with extreme grain intake

	Categories of refined grains intake			
	Level 1	Level 2	Level 3	*P* for trend [a]
All participants (*n* = 634)				
Intake of refined grains (range, g/1000kal)	112.550, 291.233	291.311, 413.746	413.867, 903.362	
Crude model	1.00 (reference)	3.16 (1.84, 5.43) [b]	8.55 (5.09, 14.37)	< 0.001
Model 2	1.00 (reference)	3.01 (1.72, 5.28)	7.90 (4.63, 13.48)	< 0.001
Model 3	1.00 (reference)	**2.90 (1.17, 7.14)**	**3.42 (1.30, 9.07)**	**0.014**
Men (*n* = 433)				
Intake of refined grains (range, g/1000kal)	112.550, 292.084	292.685, 402.715	403.300, 874.591	
Crude model	1.00 (reference)	3.33 (1.71, 6.48)	8.55 (4.61, 15.86)	< 0.001
Model 2	1.00 (reference)	3.30 (1.65, 6.57)	7.99 (4.24, 15.07)	< 0.001
Model 3	1.00 (reference)	**2.59 (1.79, 8.50)**	**3.87 (1.23, 12.17)**	**0.024**
Women (*n* = 201)				
Intake of refined grains (range, g/1000kal)	123.007, 284.895	288.169, 423.493	424.410, 903.362	
Crude model	1.00 (reference)	2.11 (0.85, 5.28)	8.14 (3.26, 20.335)	< 0.001
Model 2	1.00 (reference)	2.11 (0.81, 5.50)	7.10 (2.76, 18.24)	< 0.001
Model 3	1.00 (reference)	**2.09 (1.07, 18.84)**	**2.97 (1.10, 19.42)**	**0.048**

[a] Multivariate conditional logistic regression

[b] Odds ratio (95% confidence interval) (all such values)

Model 2 adjusted for age, sex, and BMI

Model 3 adjusted for age, sex, BMI, income, educational level, smoking stastus, drinking status, water drinking per day, and total energy, protein, fat, coffee, tea, beverages, and calcium intake.