

Supplementary Table 6. Association between sugar energy rate and cancer types in women

Sex	Cancer site		Sugar energy rate <sup>1)</sup> < 10%	Sugar energy rate <sup>1)</sup> 10–20%	Sugar energy rate <sup>1)</sup> > 20%	Sugar energy rate <sup>1)</sup> < 10%	Sugar energy rate <sup>1)</sup> ≥10%
			OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Female	All cancer						
		Model 1	1	1.03 (0.79–1.35)	1.36 (1.01–1.84)*	1	1.12 (0.88–1.43)
		Model 2	1	1.03 (0.79–1.35)	1.34 (0.99–1.81)	1	1.12 (0.87–1.43)
		Model 3	1	1.02 (0.78–1.33)	1.32 (0.97–1.79)	1	1.10 (0.86–1.41)
		Model 4	1	0.96 (0.73–1.25)	1.18 (0.87–1.60)	1	1.02 (0.79–1.30)
		Model 5	1	0.92 (0.70–1.21)	1.04 (0.75–1.45)	1	0.95 (0.73–1.22)
	Gastric cancer						
		Model 1	1	1.48 (0.63–3.48)	1.79 (0.60–5.31)	1	1.56 (0.69–3.55)
		Model 2	1	1.58 (0.68–3.71)	1.86 (0.62–5.52)	1	1.66 (0.73–3.75)
		Model	1	1.76 (0.73–	2.06	1	1.84

		3		4.25)	(0.68– 6.25)		(0.79– 4.27)
		Model 4	1	1.67 (0.68– 4.11)	1.81 (0.57– 5.72)	1	1.71 (0.71– 4.10)
		Model 5	1	1.60 (0.62– 4.14)	1.30 (0.38– 4.46)	1	1.52 (0.60– 3.86)
	Liver cancer						
		Model 1	1	2.95 (0.22– 40.11)	– <sup>2)</sup>	1	2.15 (0.16– 29.24)
		Model 2	1	3.47 (0.26– 47.01)	– <sup>2)</sup>	1	2.51 (0.19– 33.97)
		Model 3	1	4.44 (0.33– 59.59)	– <sup>2)</sup>	1	3.15 (0.24– 41.90)
		Model 4	1	5.49 (0.30– 100.92)	– <sup>2)</sup>	1	4.00 (0.23– 68.77)
		Model 5	1	6.73 (0.11– 417.55)	– <sup>2)</sup>	1	5.77 (0.10– 326.77)
	Colon cancer						
		Model 1	1	0.98 (0.41– 2.36)	0.75 (0.29– 1.93)	1	0.92 (0.41– 2.04)
		Model 2	1	0.99 (0.42– 2.37)	0.74 (0.29– 1.90)	1	0.92 (0.42– 2.03)
		Model 3	1	0.97 (0.41– 2.30)	0.73 (0.28–	1	0.90 (0.41–

					1.89)		1.98)
		Model 4	1	0.89 (0.39– 2.00)	0.61 (0.23– 1.63)	1	0.81 (0.38– 1.71)
		Model 5	1	0.79 (0.33– 1.88)	0.49 (0.17– 1.43)	1	0.72 (0.31– 1.66)
	Breast cancer						
		Model 1	1	0.97 (0.57– 1.67)	1.63 (0.89– 2.98)	1	1.15 (0.69– 1.91)
		Model 2	1	0.99 (0.57– 1.70)	1.61 (0.87– 2.97)	1	1.16 (0.69– 1.93)
		Model 3	1	0.97 (0.57– 1.65)	1.59 (0.87– 2.91)	1	1.14 (0.69– 1.88)
		Model 4	1	0.87 (0.51– 1.50)	1.32 (0.72– 2.44)	1	1.00 (0.61– 1.65)
		Model 5	1	0.82 (0.48– 1.41)	1.06 (0.53– 2.11)	1	0.88 (0.52– 1.47)
	Premenopausal breast cancer <sup>3)</sup>						
		Model 1	1	0.57 (0.12– 2.69)	1.97 (0.53– 7.41)	1	0.93 (0.28– 3.11)
		Model 2	1	0.47 (0.10– 2.27)	1.59 (0.42– 6.03)	1	0.75 (0.22– 2.57)
		Model	1	0.44 (0.10–	1.54	1	0.72

		3		2.02)	(0.41– 5.73)		(0.22– 2.34)
		Model 4	1	0.42 (0.10– 1.77)	1.37 (0.37– 5.15)	1	0.67 (0.21– 2.08)
		Model 5	1	0.41 (0.11– 1.59)	0.83 (0.14– 4.89)	1	0.53 (0.17– 1.59)
	Postmenopausal breast cancer <sup>3)</sup>						
		Model 1	1	1.01 (0.56– 1.79)	1.32 (0.67– 2.61)	1	1.10 (0.63– 1.90)
		Model 2	1	0.97 (0.54– 1.75)	1.25 (0.62– 2.50)	1	1.05 (0.60– 1.84)
		Model 3	1	0.96 (0.54– 1.70)	1.23 (0.62– 2.45)	1	1.04 (0.60– 1.79)
		Model 4	1	0.92 (0.52– 1.65)	1.15 (0.59– 2.27)	1	0.99 (0.57– 1.71)
		Model 5	1	0.88 (0.48– 1.59)	1.04 (0.50– 2.17)	1	0.91 (0.51– 1.63)
	Cervical cancer						
		Model 1	1	1.45 (0.67– 3.13)	2.14 (0.87– 5.28)	1	1.63 (0.81– 3.31)
		Model 2	1	1.51 (0.71– 3.22)	2.17 (0.88– 5.34)	1	1.69 (0.85– 3.38)
		Model	1	1.53 (0.71–	2.18	1	1.71

		3		3.33)	(0.89– 5.33)		(0.85– 3.46)
		Model 4	1	1.67 (0.78– 3.60)	2.68 (1.09– 6.60)*	1	1.92 (0.96– 3.84)
		Model 5	1	1.52 (0.65– 3.56)	2.02 (0.90– 4.52)	1	1.62 (0.75– 3.51)
	Premenopausal cervical cancer <sup>3)</sup>						
		Model 1	1	5.55 (1.06– 28.93)*	4.80 (0.67– 34.21)	1	5.36 (1.08– 26.63)*
		Model 2	1	5.38 (1.03– 28.25)*	4.70 (0.65– 33.92)	1	5.21 (1.04– 26.12)*
		Model 3	1	6.07 (1.01– 36.48)*	5.34 (0.72– 39.75)	1	5.89 (1.04– 33.35)*
		Model 4	1	6.75 (1.22– 37.48)*	6.85 (0.85– 54.88)	1	6.78 (1.25– 36.64)*
		Model 5	1	5.12 (0.97– 27.08)	6.58 (0.82– 52.86)	1	5.39 (1.04– 27.96)*
	Postmenopausal cervical cancer <sup>3)</sup>						
		Model 1	1	1.03 (0.43– 2.45)	1.62 (0.59– 4.45)	1	1.20 (0.56– 2.61)
		Model 2	1	1.21 (0.51– 2.85)	2.02 (0.76– 5.36)	1	1.43 (0.68– 3.04)

		Model 3	1	1.23 (0.51– 2.95)	2.04 (0.78– 5.37)	1	1.45 (0.68– 3.11)
		Model 4	1	1.32 (0.55– 3.17)	2.45 (0.92– 6.52)	1	1.60 (0.76– 3.39)
		Model 5	1	1.12 (0.42– 2.95)	1.48 (0.62– 3.52)	1	1.20 (0.51– 2.81)
	Lung cancer						
		Model 1	1	0.89 (0.21– 3.74)	1.71 (0.35– 8.30)	1	1.11 (0.31– 4.00)
		Model 2	1	0.91 (0.22– 3.78)	1.71 (0.35– 8.23)	1	1.13 (0.32– 4.02)
		Model 3	1	0.87 (0.20– 3.73)	1.63 (0.33– 8.06)	1	1.08 (0.29– 4.02)
		Model 4	1	0.80 (0.19– 3.42)	1.30 (0.24– 7.05)	1	0.94 (0.25– 3.64)
		Model 5	1	0.86 (0.20– 3.66)	1.42 (0.20– 9.98)	1	0.99 (0.24– 4.08)
	Thyroid cancer						
		Model 1	1	0.82 (0.54– 1.24)	0.93 (0.54– 1.61)	1	0.85 (0.57– 1.25)
		Model 2	1	0.81 (0.53– 1.23)	0.92 (0.54– 1.59)	1	0.84 (0.57– 1.24)
		Model	1	0.81 (0.53–	0.92	1	0.84

		3		1.24)	(0.53– 1.59)		(0.57– 1.26)
		Model 4	1	0.74 (0.48– 1.12)	0.80 (0.46– 1.40)	1	0.75 (0.51– 1.12)
		Model 5	1	0.75 (0.50– 1.14)	0.85 (0.48– 1.52)	1	0.77 (0.52– 1.15)
	Other cancers						
		Model 1	1	1.21 (0.61– 2.42)	1.80 (0.82– 3.94)	1	1.37 (0.72– 2.62)
		Model 2	1	1.22 (0.61– 2.43)	1.77 (0.81– 3.86)	1	1.37 (0.72– 2.61)
		Model 3	1	1.18 (0.59– 2.35)	1.72 (0.79– 3.74)	1	1.33 (0.70– 2.53)
		Model 4	1	1.14 (0.59– 2.18)	1.49 (0.72– 3.08)	1	1.24 (0.68– 2.24)
		Model 5	1	1.03 (0.53– 2.01)	1.16 (0.48– 2.80)	1	1.06 (0.56– 2.03)

Values were calculated by logistic regression analysis.

OR, odds ratio; CI, confidence interval.

Model 1: Unadjusted.

Model 2: Adjusted for age (continuous) and sex (categorical: male, female).

Model 3: Adjusted for model 2 plus height (continuous, cm) and BMI (continuous, kg/m<sup>2</sup>).

Model 4: Adjusted for model 3 plus education level (categorical: ≤ elementary school degree, middle school degree, high school degree, ≥ college degree), smoking status (categorical: yes, no), physical activities (categorical: yes, no) and drinking status (categorical: yes, no).

Model 5: Adjusted for model 4 plus energy intake (continuous variable: kcal/d), SFA intake (continuous,

g/d), sodium intake (continuous, g/d), dietary fiber intake (continuous, g/d) and carbohydrate intake (continuous, g/d).

Model 2 for male and female table was adjusted except for sex.

Model 5 for sugar energy rate was adjusted except for energy intake.

<sup>1)</sup> Sugar energy rate formula:  $(\text{Total sugar intake (g)} \times 4) / \text{Energy intake (g)} \times 100$ .

<sup>2)</sup> Small frequency issue: The frequency of this level is too small to confirm the results.

<sup>3)</sup> Menopausal status: Assessed at the time of the survey, not at the time of diagnosis.

\* $P < 0.05$ .