Supplemental Table 1. Scoring system of the diet quality score used in the present study

Category*	Servings consumed†	Scoring system	Food group	Food item‡
Grain dishes	<4	10 × (serving consumed)/4	Rice	White rice; white rice mixed with barley; white rice with germ; half-milled rice; 70%-milled rice; brown rice (6 items)
	≥4	10	Noodles	Japanese noodles (buckwheat noodles and Japanese wheat noodles); instant noodles; Chinese noodles; spaghetti (4 items)
			Bread	White bread; butter roll; croissant (3 items)
			Other grain products	Pizza; Japanese-style pancakes; cornflakes (3 items)
Vegetable dishes	<5	10 × (serving consumed)/5	Potatoes	French fries; potatoes; sweet potatoes, yams and taro; konnyaku (i.e., devil's tongue jelly) (4 items)
	≥5	10	Nuts	Peanuts; other nuts (2 items)
			Vegetables	Carrots; pumpkins; tomatoes; green peppers; broccoli; green leafy vegetables; salted pickled plums; cabbage; cucumbers; lettuce; Chinese cabbage; bean sprouts; radishes; onions; cauliflower; eggplants; burdock; lotus root; salted pickles (leafy vegetables); salted pickles (others); mushrooms (21 items)
			Seaweed	Wakame and hijiki seaweed; laver (i.e., dried, edible seaweed) (2 items)
			Vegetable juice	Vegetable juice; tomato juice (2 items)
Fish and meat dishes	<3	10 × (serving consumed)/3	Meat	Ground beef and pork; chicken; pork; beef; liver; ham and sausages; bacon (7 items)
	≥3	10	Egg	Eggs (1 item)
			Soy products	Tofu (i.e., soybean curd); tofu products; natto (i.e., fermented soybeans); boiled beans; soy milk (5 items)
			Fish	Dried fish; small fish with bones; canned tuna; eel; white meat fish; red meat fish; oily fish; ground fish meat products (8 items)
			Other sea products	Shrimp and crab; squid and octopus; oysters; other shellfish; fish eggs; boiled fish and shellfish in soy sauce; salted fish intestines (7 items)
Milk	<2	10 × (serving consumed)/2	Dairy products	Sweetened yogurt; non-sweetened yogurt; moderately sweetened yogurt; cheese; cottage cheese; low-fat milk; full-fat milk; cream or creamer added to coffee (8 items)
	≥2	10		
Fruits	<2	10 × (serving consumed)/2	Fruit	Raisins; canned fruits; oranges; bananas; apples; strawberries; grapes; peaches; pears; persimmons; kiwi fruits; melons; watermelons (13 items)
	≥2	10	Fruit juice	Fruit juice (1 items)
Energy from snacks, confection and beverages	≤837 kJ	10	Alcoholic beverages	Beer; Sake; Shochu; Shochu mixed with water or a carbonated beverage; whiskey; wine (6 items)
	>837 kJ to <1674 kJ	10 - 10 × [(energy consumed in kJ) - 837]/837	Sugar	Jam and marmalade; sugar for coffee and black tea (2 items)
	≥1674 kJ	0	Confectioneries	Japanese bread with a sweet filling; pancakes; potato chips; rice crackers; snacks made from wheat flour; Japanese sweets with azuki beans; Japanese sweets without azuki beans; cakes; cookies and biscuits; chocolates; candies, caramels and chewing gum; jellies; doughnuts; ice cream (premium); ice cream (unspecified varieties); ice cream (regular) (16 items)
			Soft drinks	Fruit drink; cocoa; lactic acid bacteria beverages; sugar-sweetened soft drinks; nutritional supplement drinks (5 items)
Sodium from seasonings	For young women		Seasonings	Ketchup; fat-free salad dressing; table salt; salt used during cooking; soy sauce; curry and roux in stew; miso as seasoning (7 items)
	≤2619 mg§	10		
	>2619 mg to <5238 mg	10 - 10 × [(sodium consumed in mg) - 2619]/2619		
	≥5238 mg	0		
	For middle-aged women			
	≤3108 mg‖	10		
	>3108 mg to <6216 mg	10 - 10 × [(sodium consumed in mg) - 3108]/3108		
	≥6216 mg	0		

Supplemental Table 1. Continued

* By definition, one serving of "grain dishes" contained 40 g carbohydrate; one serving of "vegetable dishes" was 70 g; one serving of "fish and meat dishes" contained 6 g protein; one serving of "milk" contained 100 mg calcium; and one serving of "fruits" was 100 g.

† Per 7531 kJ of energy.

‡ The following food groups were not categorized and thus not used in the calculation described here: green tea (1 item), black tea (1 item), coffee (1 item), diet soft drinks (1 item), fats (1 item), oils (4 items), sugar used during cooking (1 item), soups (5 items), nutritional supplement bars (1 item), artificial sweeteners (1 item) and drinking water (1 item).

§ This value (2619 mg of sodium) was based on the 10th percentile of energy-adjusted sodium intake from seasonings (per 7531 kJ) in young women.

|| This value (3108 mg of sodium) was based on the 10th percentile of energy-adjusted sodium intake from seasonings (per 7531 kJ) in middle-aged women.

Supplemental Table 2. Food group intake (g/4184 kJ) according to quintile (Q) of the diet quality score in young and middle-aged Japanese women*
(Mean values and standard deviations)

	All		Q1		Q2		Q3		Q4		Q5		P for trend†
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
Young	n 3963		n 792		n 793		n 793		n 793		n 792		
Positive associations													
Rice	167.9	69.9	138.7	60.9	163.8	71.8	173.1	74.3	179.9	67.6	184.2	64.6	<0.0001
Potatoes	15.4	11.7	13.3	9.6	14.8	10.4	15.5	12.5	16.1	11.2	17.4	14.1	<0.0001
Vegetables	103.9	63.3	80.7	53.0	92.2	56.2	104.9	60.6	114.0	67.2	128.0	67.4	<0.0001
Seaweed	6.4	8.1	4.8	5.6	5.9	6.4	6.8	9.2	7.0	9.5	7.6	8.6	<0.0001
Vegetable juice	14.0	42.4	6.1	22.7	9.5	25.5	15.4	51.8	15.8	41.9	23.2	56.8	<0.0001
Soy products	22.9	29.0	17.8	27.8	21.3	27.2	21.7	24.6	25.6	32.6	27.9	31.0	<0.0001
Fish	18.7	13.3	16.7	12.5	17.5	11.8	18.7	12.9	20.8	15.7	19.5	12.9	<0.0001
Dairy products	58.9	67.3	22.0	28.4	39.2	49.8	55.8	67.8	73.0	69.7	104.2	77.1	<0.0001
Fruit	24.7	26.9	13.7	13.5	18.9	18.9	22.4	24.0	28.0	26.7	40.2	37.2	<0.0001
Fruit juice	13.5	34.3	7.7	24.0	10.6	23.1	13.5	34.5	16.0	44.5	19.8	39.0	<0.0001
Inverse associations													
Bread	18.3	16.6	19.9	16.4	19.2	16.9	18.8	18.1	16.5	15.2	17.2	16.1	<0.0001
Other grain products	6.7	8.3	7.5	8.6	7.4	8.5	6.3	8.2	6.4	8.1	6.0	8.2	<0.0001
Meat	36.8	19.3	37.4	21.5	37.1	19.7	37.4	19.9	37.7	18.4	34.2	16.6	0.005
Alcoholic beverages	1.2	15.0	2.4	30.4	1.7	10.4	1.1	8.0	0.6	3.3	0.4	2.6	0.002
Sugar	2.0	3.5	2.7	4.7	2.3	3.7	1.8	3.0	1.8	3.0	1.6	2.7	<0.0001
Confectioneries	48.4	27.0	70.8	29.0	55.9	26.2	46.8	24.5	37.0	17.2	31.6	16.2	<0.0001
Soft drinks	43.8	72.6	69.6	116.0	49.6	68.7	38.6	53.5	34.2	50.8	26.8	40.9	<0.0001
Seasonings	9.2	7.0	10.1	8.3	9.2	5.3	9.3	7.5	9.4	7.5	8.1	5.6	<0.0001
Green tea	300.3	277.1	317.1	290.7	300.8	262.9	309.5	292.9	288.2	260.1	286.3	276.3	0.02
Black tea	27.9	70.2	32.6	81.5	32.4	85.0	28.5	72.6	24.2	50.3	22.0	53.7	0.0003
Oils	12.7	7.0	13.7	8.2	12.6	6.7	12.9	7.0	12.5	6.0	11.9	6.9	<0.0001
Middle-aged	n 3833		n 766		n 767		n 767		n 767		n 766		
Positive associations													
Rice	150.7	63.8	125.6	57.6	142.9	62.8	156.1	68.8	162.2	63.0	166.6	57.7	<0.0001
Potatoes	16.4	12.4	14.0	10.0	15.7	10.9	16.4	12.2	17.6	14.0	18.5	13.8	<0.0001
Vegetables	117.4	59.5	98.0	52.3	109.3	54.4	117.1	58.5	124.8	63.5	137.9	60.2	<0.0001
Seaweed	7.1	7.2	5.7	5.8	6.3	6.2	7.5	8.4	7.7	7.0	8.5	8.1	<0.0001
Vegetable juice	9.6	30.0	5.1	23.8	6.0	20.4	8.5	20.8	11.2	31.7	17.4	44.6	<0.0001
Soy products	28.3	27.7	22.9	24.5	26.7	28.1	27.7	28.5	30.8	28.8	33.5	27.1	<0.0001
Fish	20.1	12.9	18.3	13.5	19.1	11.7	20.7	13.4	21.3	13.1	21.1	12.2	<0.0001
Dairy products	69.3	64.2	27.8	34.1	51.6	52.6	66.3	58.9	85.1	64.9	115.6	67.8	<0.0001
Fruit	31.5	30.7	16.2	16.2	22.8	20.8	29.2	26.9	35.9	32.1	53.5	38.1	<0.0001
Fruit juice	5.5	16.5	2.9	12.2	3.7	10.9	4.8	13.9	6.7	17.1	9.4	24.1	<0.0001
Green tea	259.7	229.4	251.4	248.6	257.2	226.5	258.6	221.9	252.0	213.5	279.2	234.2	0.04
Inverse associations													
Meat	36.4	17.9	38.4	19.7	37.3	18.4	36.4	17.3	37.0	18.0	32.7	15.4	<0.0001
Eggs	18.3	12.1	18.9	14.4	18.8	12.0	18.2	11.3	18.4	11.4	17.2	11.6	0.007
Alcoholic beverages	48.2	111.4	112.5	178.8	57.0	116.6	37.1	79.7	20.6	52.9	14.1	33.6	<0.0001
Sugar	2.7	4.1	3.5	5.3	2.9	4.1	2.8	4.0	2.4	3.7	2.1	3.2	<0.0001
Confectioneries	40.5	22.3	52.1	27.2	47.0	23.0	41.1	20.6	34.1	16.4	28.2	12.8	<0.0001
Soft drinks	23.7	45.1	34.2	67.2	24.9	48.7	20.7	34.0	20.7	32.1	17.8	30.5	<0.0001
Seasonings	10.0	7.1	11.5	8.4	10.3	6.9	10.2	8.0	9.3	5.8	8.7	5.6	<0.0001
Coffee	171.1	162.4	199.3	176.4	177.5	158.8	166.4	165.4	158.8	157.6	153.7	149.1	<0.0001
Oils	12.3	6.4	13.6	7.3	12.9	6.9	12.3	6.3	11.9	5.6	10.8	5.1	<0.0001

* The diet quality score (0-70) was developed based on the Japanese food guide Spinning Top with some modifications, and calculated using intakes of "grain dishes", "vegetable dishes", "fish and meat dishes", "milk", "fruits", energy from "snacks, confection and beverages", and sodium from seasonings. See Supplemental Table 1 for more details. Only food groups significantly associated with the diet quality score are shown.

† A liner trend test was used with the median value in each quintile category of the diet quality score as a continuous variable in linear regression.

Supplemental Table 3. Nutrient intake according to quintile (Q) of the diet quality score in young and middle-aged Japanese women*
(Mean values and standard deviations)

	All		Q1		Q2		Q3		Q4		Q5		*P* for trend†
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
Young	*n* 3963		*n* 792		*n* 793		*n* 793		*n* 793		*n* 792		
Total fat (% of energy)	29.4	6.3	31.7	6.8	29.6	6.1	29.0	6.2	28.8	5.8	27.8	5.8	<0.0001
Saturated fat (% of energy)	8.3	2.3	9.2	2.5	8.4	2.3	8.1	2.2	8.0	2.0	7.9	2.0	<0.0001
EPA + DHA (% of energy)	0.20	0.14	0.19	0.14	0.19	0.10	0.20	0.13	0.23	0.16	0.21	0.14	<0.0001
Dietary fiber (g/4184 kJ)	6.2	2.0	5.5	1.7	5.9	1.7	6.2	1.8	6.5	2.2	7.0	2.1	<0.0001
Calcium (mg/4184 kJ)	246	94	204	63	220	80	241	94	263	94	304	101	<0.0001
Magnesium (mg/4184 kJ)	113	28	101	23	107	25	112	25	119	29	126	28	<0.0001
Iron (mg/4184 kJ)	3.6	0.9	3.5	0.9	3.5	0.8	3.6	0.9	3.7	1.0	3.8	0.9	<0.0001
Folate (μg/4184 kJ)	147	52	130	46	139	46	147	48	154	57	165	57	<0.0001
Vitamin C (mg/4184 kJ)	46.5	23.5	38.4	19.0	42.4	20.6	46.7	24.9	48.9	23.8	56.2	24.7	<0.0001
Middle-aged	*n* 3833		*n* 766		*n* 767		*n* 767		*n* 767		*n* 766		
Total fat (% of energy)	29.1	5.9	30.1	6.5	29.9	6.0	29.1	5.7	28.8	5.7	27.6	5.1	<0.0001
Saturated fat (% of energy)	8.0	2.0	8.1	2.2	8.1	2.0	8.0	2.0	7.9	2.0	7.8	1.8	0.0002
EPA + DHA (% of energy)	0.26	0.15	0.24	0.16	0.25	0.14	0.26	0.15	0.27	0.15	0.27	0.14	<0.0001
Dietary fiber (g/4184 kJ)	6.7	2.0	5.9	1.7	6.3	1.8	6.8	1.9	7.0	2.1	7.7	2.1	<0.0001
Calcium (mg/4184 kJ)	267	93	209	65	241	78	262	83	289	90	322	95	<0.0001
Magnesium (mg/4184 kJ)	131	27	121	25	125	24	130	27	134	27	145	28	<0.0001
Iron (mg/4184 kJ)	3.7	0.9	3.5	0.8	3.6	0.8	3.7	0.8	3.8	0.9	4.0	0.9	<0.0001
Folate (μg/4184 kJ)	156	49	140	44	148	44	154	45	161	51	178	50	<0.0001
Vitamin C (mg/4184 kJ)	48.0	23.3	40.3	23.0	44.1	21.8	46.8	21.2	50.8	23.4	58.2	22.7	<0.0001

* The diet quality score (0-70) was developed based on the Japanese food guide Spinning Top with some modifications, and calculated using intakes of "grain dishes", "vegetable dishes", "fish and meat dishes", "milk", "fruits", energy from "snacks, confection and beverages", and sodium from seasonings. See Supplemental Table 1 for more details.

† A liner trend test was used with the median value in each quintile category of the diet quality score as a continuous variable in linear regression.

Supplemental Table 4. Selected characteristics of young Japanese women according to quintile (Q) of the diet quality score (3963)*
(Mean values and standard deviations or percentages)

	Q1 (n 792)		Q2 (n 793)		Q3 (n 793)		Q4 (n 793)		Q5 (n 792)		P for
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	trend†
BMI (kg/m²)	20.7	2.7	20.7	2.7	21.0	2.9	21.0	3.0	21.0	2.8	0.008
Current smoking (%)											0.06
Yes	0.4		0.1		0.4		0		0		
No	99.6		99.9		99.6		100		100		
Medication use (%)											0.03
Yes	8.5		9.7		11.0		11.6		13.1		
No	91.5		90.3		89.0		88.4		86.9		
Living alone (%)											<0.0001
Yes	20.5		18.9		21.3		26.0		29.8		
No	79.6		81.1		78.7		74.0		70.2		
Self-reported level of stress (%)											0.01
Very low	3.8		4.0		4.7		4.7		4.2		
Low	6.9		9.1		11.4		8.5		9.0		
Normal	56.3		58.1		58.1		62.3		60.6		
High	28.5		26.0		24.1		22.2		23.9		
Very high	4.4		2.8		1.8		2.4		2.4		
Dietary reporting status (%)‡											<0.0001
Under-reporting	14.8		18.4		21.6		20.4		18.4		
Plausible reporting	75.1		74.0		73.3		74.2		77.2		
Over-reporting	10.1		7.6		5.2		5.4		4.4		
Physical activity (total metabolic equivalents-h/d)	37.8	5.4	37.8	5.4	37.7	6.1	37.7	5.2	38.0	5.5	0.82
Energy intake (kJ/d)	7758	2848	7367	2504	7027	2247	7048	2231	7009	1992	<0.0001

* The diet quality score (0-70) was developed based on the Japanese food guide Spinning Top with some modifications, and calculated using intakes of "grain dishes", "vegetable dishes", "fish and meat dishes", "milk", "fruits", energy from "snacks, confection and beverages", and sodium from seasonings. See Supplemental Table 1 for more details.

† For continuous variables, a linear trend test was used with the median value in each quintile category of the diet quality score as a continuous variable in linear regression; for categorical variables, a Mantel-Haenszel chi-square test was used.

‡ Under-reporting was defined as subjects with a ratio of reported energy intake to BMR (EI:BMR) <1.09; plausible reporting defined as subjects with EI:BMR 1.09-2.21; over-reporting defined as subjects with EI:BMR >2.21.

Supplemental Table 5. Selected characteristics of middle-aged Japanese women according to quintile (Q) of the diet quality score (*n* 3833)*
(Mean values and standard deviations or percentages)

	Q1 (*n* 766)		Q2 (*n* 767)		Q3 (*n* 767)		Q4 (*n* 767)		Q5 (*n* 766)		*P* for
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	trend†
Age (years)	46.9	4.0	47.6	4.1	47.9	4.5	48.1	4.0	48.8	4.3	<0.0001
BMI (kg/m²)	22.0	3.1	22.0	3.1	22.1	3.1	22.2	3.3	21.9	3.1	0.95
Current smoking (%)											<0.0001
Yes	14.2		8.3		6.4		5.1		3.8		
No	85.8		91.7		93.6		94.9		96.2		
Education (%)											<0.0001
Low (≤12 years)	55.9		53.5		47.1		45.4		38.1		
Middle (13-15 years)	35.4		34.4		38.9		37.3		41.5		
High (≥16 years)	8.8		12.1		14.1		17.3		20.4		
Occupation (%)											0.01
Housewife	17.0		17.5		18.0		21.4		25.3		
Part-time job	46.5		47.3		44.7		44.6		38.0		
Full-time job	36.6		35.2		37.3		34.0		36.7		
Medication use (%)											0.53
Yes	25.2		26.9		25.6		25.0		24.5		
No	74.8		73.1		74.5		75.0		75.5		
Marital status											0.02
Married	89.6		91.9		91.0		92.3		93.0		
Unmarried	10.4		8.1		9.0		7.7		7.1		
Self-reported level of stress (%)											0.52
Very low	4.2		4.6		5.6		3.4		3.7		
Low	8.6		8.5		10.3		9.0		9.7		
Normal	59.1		61.3		57.9		58.5		58.2		
High	24.4		23.5		24.3		26.9		24.9		
Very high	3.7		2.2		2.0		2.2		3.5		
Dietary reporting status (%)‡											0.12
Under-reporting	9.4		7.7		8.0		6.5		6.9		
Plausible reporting	75.7		80.4		81.1		83.7		84.1		
Over-reporting	14.9		11.9		11.0		9.8		9.0		
Physical activity (total metabolic equivalents-h/d)	40.7	5.6	40.6	5.4	40.5	5.7	41.1	5.6	40.6	5.4	0.87
Energy intake (kJ/d)	7904	2389	7891	2258	7665	2255	7657	2222	7456	1971	<0.0001

* The diet quality score (0-70) was developed based on the Japanese food guide Spinning Top with some modifications, and calculated using intakes of "grain dishes", "vegetable dishes", "fish and meat dishes", "milk", "fruits", energy from "snacks, confection and beverages", and sodium from seasonings. See Supplemental Table 1 for more details.

† For continuous variables, a linear trend test was used with the median value in each quintile category of the diet quality score as a continuous variable in linear regression; for categorical variables, a Mantel-Haenszel chi-square test was used.

‡ Under-reporting was defined as subjects with a ratio of reported energy intake to BMR (EI:BMR) <1.09; plausible reporting defined as subjects with EI:BMR 1.09-2.21; over-reporting defined as subjects with EI:BMR >2.21.

Supplemental Table 6. Associations between the diet quality score and the Center for Epidemiologic Studies Depression score in young and middle-aged Japanese women*

(Regression coefficients (β) and 95% confidence intervals)

	All				Only subjects reporting plausible energy intake†			
	n	β‡	95% CI‡	*P*	*n*	β‡	95% CI‡	*P*
Young	3963	-0.09	-0.12, -0.06	<0.0001	2962	-0.09	-0.13, -0.06	<0.0001
Middle-aged	3833	-0.07	-0.10, -0.04	<0.0001	3105	-0.08	-0.11, -0.05	<0.0001

* The diet quality score (0-70) was developed based on the Japanese food guide Spinning Top with some modifications, and calculated using intakes of "grain dishes", "vegetable dishes", "fish and meat dishes", "milk", "fruits", energy from "snacks, confection and beverages", and sodium from seasonings. See Supplemental Table 1 for more details. Adjustment was made for BMI (kg/m², continuous), current smoking (yes or no), medication use (yes or no), self-reported level of stress (very low, low, normal, high, or very high), dietary reporting status (under-reporting, plausible reporting, or over-reporting; only in the analysis including all subjects), physical activity (total metabolic equivalents-h/d, continuous), and energy intake (kJ/d, continuous). For young women, additional adjustment was made for living alone (yes or no). For middle-aged women, additional adjustment was made for age (years, continuous), education (low, middle, or high), occupation (housewife, part-time job, or full-time job), and marital status (married or unmarried).

† Plausible energy intake reporters were defined as subjects with the ratio of energy intake to basal metabolic rate 1.09 to 2.21.

‡ Regression coefficients mean the change of the Center for Epidemiologic Studies Depression score (possible range 0-60) with 1-unit increase of the diet quality score (possible range 0-70).