Supplemental Tables

Table S1. Factor loadings of food groups in dietary patterns identified using principle component analysis

	Balanced diet		Prudent diet		Noodle/ meat diet		Rice-based diet	
Rice	-2		-7		3		93	*
Grain	8		-5		-2		-93	*
Noodles	3		1		62	*	3	
Breads	-5		35		53	*	-4	
Cakes	-4		29		31		6	
Cookies	36		44	*	3		1	
Beans	27		49	*	6		-2	
Potatoes	51	*	-3		-1		-3	
Kimchi	11		41	*	16		5	
Eggs	-3		15		76	*	-3	
Fast foods	69	*	39		-2		-2	
Green vegetables	72	*	25		1		1	
Mushroom	51	*	33		-5		-4	
White vegetables	54	*	20		11		0	
Fatty fish	66	*	14		12		0	
White fish	49	*	2		18		1	
Crabs	20		13		6		-2	
Processed meats	46	*	-11		40	*	8	
Red meats	16		2		66	*	-4	
Soups	33		-8		38		4	
Chickens	46	*	38		-2		-4	
Seaweeds	14		48	*	2		1	
Milk	22		29		6		2	
Beverages	11		-19		16		13	
Coffee	14		-11		23		14	
Tea	22		46	*	-5		-5	
Fruit	50	*	-4		4		1	
Pickle	17		-30		15		5	
Nuts	1		50	*	7		-4	
Variance explained by each factor	3.7096422		2.3282962		2.2892598		1.7968546	

Table S2. Adjusted odds ratios for breast cancer according to the polygenetic risk scores of the best model (PRS) for gene-gene interaction after covariate adjustments

	Model 1			Model 2	
	Low-PRS (n=5,276)	Medium-PRS (n=19,660)	High-PRS (n=12,178)	Medium-PRS (n=21,641)	High-PRS (n=4,201)
BMI	1	1.004 (0.935-1.077)	1.002 (0.893-1.124)	0.972 (0.881-1.073)	1.003 (0.903-1.113)
Waist circumference	1	1.014 (0.908-1.132)	0.955 (0.849-1.073)	0.988 (0.847-1.151)	0.903 (0.766-1.063)
Type 2 diabetes	1	1.037 (0.913~1.177)	1.019 (0.890~1.167)	0.975 (0.727~1.308)	1.100 (0.808~1.498)
Hypertension	1	1.080 (0.993-1.174)	1.103 (1.010-1.206)	1.011 (0.902-1.133)	1.035 (0.917-1.168)
Total cholesterol	1	1.077 (0.973-1.192)	1.104 (0.991-1.231)	1.099 (0.954-1.267)	1.153 (0.990-1.343)
LDL cholesterol	1	0.979 (0.899-1.067)	1.005 (0.917-1.100)	0.952 (0.849-1.067)	0.979 (0.867-1.105)
HDL cholesterol	1	1.064 (0.992-1.140)	1.044 (0.970-1.124)	1.087 (0.985-1.198)	1.063 (0.958-1.180)
TG	1	1.051 (0.968-1.142)	1.051 (0.968-1.142)	1.014 (0.913-1.127)	1.084 (0.970-1.212)
Hs CRP	1	0.815 (0.638-1.041)	0.875 (0.675-1.135)	0.922 (0.674-1.261)	1.054 (0.759-1.462)
WBC counts	1	0.963 (0.906-1.023)	1.032 (0.967-1.102)	0.965 (0.907-1.025)	1.030 (0.964-1.100)

Values represent odd ratios and 95% confidence intervals.

The PRSBM scores of the subjects in the best model were calculated by the summation of the risk alleles of the included genetic variants in the model.

The subjects were divided into three groups by the tertiles of the PRS (0-3, 4-5, and >5).

Low-PRS was the reference for both model 1 and model 2.

The cutoff value of each parameter was as follows: <25 kg/m^2 BMI, 90 cm for men and 85 cm for women waist circumferences; < 25 kg/m^2 BMI, 90 cm for men and 85 cm for women waist circumferences, 230 mg/dL plasma total cholesterol concentrations, 40 mg/dL for men and 50 mg/dL for women plasma HDL cholesterol, 150 mg/dL plasma triglyceride concentrations, <126 ml/dL fasting serum glucose plus diabetic drug intake, 140 mmHg SBP, 90 mmHg DBP plus hypertension medication, 0.5 mg/dL serum high sensitive-C-reactive protein (hs-CRP) concentrations, and 5.6X10^9/L white blood cell counts

Model 1: adjusted for age, residence area, survey year, body mass index (BMI), education, job, and income.

Model 2: adjusted for age, residence area, survey year, BMI, education, income, smoking, alcohol, energy, physical activity, fat percent intake carbohydrate percent intake, menopause age, initial menstruation age, and pregnancy experience.

[*]Significantly different from low GRS in logistic regression analysis at [*] P<0.05, [**] P<0.01, [***] P<0.001.