Supplemental Table 1. Food lists of 29 food groups

|  |  |
| --- | --- |
| Food groups  | Lists |
| Green/yellow vegetables | Carrot, spinach, sesame leaf, lettuce, zucchini, water dropwort, sweet potato tips, lactuca, pepper, pepper leaf, leaf beet, shepherd's purse, broccoli, radish leaf, tomato, celery, crown daisy, Korean leek, mugwort |
| Light colored vegetables | Bean sprout, cabbage, radish root, onion, bellflower, bracken, deodeok (mountain herb), garlic, green onion, lotus root |
| Kimchi | Kimchi  |
| fermented foods | Garlic, garlic stem, radish root, Jotgal |
| Tubers | Potato, sweet potato, starch, dangmyeon (starch noodle) |
| Legumes | Pea, black soybeans |
| Mushrooms | Mushrooms  |
| Fruits | Apple, banana, pear, orange, grape, persimmon, mandarin, strawberry, peach, watermelon, oriental melon, muskmelon, processed fruits |
| Nuts | Acorn jelly, peanut, almond, pine nut, sesame seed |
| Rice | Rice  |
| Grains | millet, flour, barley, cereal, adlay |
| Noodles | Noodles  |
| Bread | Bread |
| Cake | Cake, jam |
| Fast foods | Pizza, Hamburg |
| Sweets | Chocolate, honey, candy, sugar, starch syrup |
| Cookies | Biscuit, cookie, cracker, snacks |
| Tofu, soymilk | Tofu, soymilk |
| Milk and its products | Milk, liquid, curd yogurt, Ice-cream, sherbet, cheese |
| Red meat | Beef, pork |
| Processed meats | Luncheon meat, bacon, sausages, ham, burgers |
| Poultry | Chicken |
| Eggs | Eggs |
| Coffee, tea | Coffee and tea  |
| Carbonated beverages | Carbonated beverages  |
| Fatty fish | Mackerel, mackerel pike, Spanish mackerel, bass, tuna, eel |
| Lean fish | Hairtail, pollack, yellow corvine, halibut, sea bream |
| Clams | Clams, mussels, oysters, and scallops, Crab, shrimp, octopus, squid, processed fish cake |
| Seaweeds | Dried laver, sea mustard, kelp |

Supplemental Table 2. Factor loadings of food groups in dietary patterns identified using principle component analysis

|  |  |
| --- | --- |
| 　 | Factor loading |
| Balanced Korean diet | Western flour-rich diet  | Rice-based diet |
| Rice | -0.09 | -0.07 | **0.79** |
| Grain | 0.09 | 0.08 | **-0.7** |
| Noodle | 0.04 | 0.36 | 0.24 |
| Bread | 0.02 | **0.59** | -0.02 |
| Cake | 0.07 | **0.69** | 0.05 |
| Cookie | 0.02 | **0.54** | 0.02 |
| Beans | **0.5** | 0.14 | -0.05 |
| Potato | **0.46** | 0.18 | -0.12 |
| Kimchi | **0.44** | -0.09 | 0.12 |
| Egg | 0.26 | 0.32 | -0.03 |
| Fast food | 0.01 | **0.57** | 0.04 |
| Green vegetable | **0.79** | 0.03 | -0.01 |
| Mushroom | **0.61** | -0.01 | -0.06 |
| While vegetable | **0.75** | 0 | 0.08 |
| Fatty fish | **0.57** | 0.15 | 0.07 |
| White fish | **0.67** | 0.07 | 0.11 |
| Crab | **0.44** | 0.1 | 0.17 |
| Processed meats | 0.22 | 0.11 | 0 |
| Red meats | 0.34 | 0.34 | 0.35 |
| Soup | 0.21 | 0.24 | 0.22 |
| Chicken | 0.25 | 0.35 | 0.27 |
| Seaweed | **0.59** | 0.03 | -0.07 |
| Milk | 0.32 | 0.21 | -0.15 |
| Beverage | 0.3 | 0.17 | -0.01 |
| Coffee | 0 | 0.11 | 0.27 |
| Tea | 0.04 | 0.19 | 0.26 |
| Fruit | **0.4** | 0.12 | -0.17 |
| Pickle | **0.43** | -0.06 | 0.16 |
| Alcohol | 0.03 | 0 | 0.23 |
| Nuts | 0.21 | 0.27 | -0.21 |
| Eigenvector | 4.48 | 2.29 | 1.83 |
| Variance explained (%)  | 44.4 | 23.2 | 18.0 |

Loadings ≥ 0.4 are represented by bold digits (n=28,445).

Supplemental Table 3. Demographic characteristics and nutrient intake of subjects according to three dietary patterns

|  |  |  |  |
| --- | --- | --- | --- |
| 　 | Balanced Korean diet | Western flour-rich diet | Rice-based diet |
| T1 (n=9,811) | T2 (n=9,213) | T3 (n=9,421) | T1 (n=9,306) | T2 (n=9,480) | T3 (n=9,659) | T1 (n=9,486) | T2 (n=9,278) | T3 (n=9681) |
| Age (yr) | 53.0±8.1c | 53.7±8.0b | 54.5±7.8a\*\*\* | 54.3±8.1a | 53.7±7.9b | 53.3±7.8b\*\*\* | 54.8±7.7a | 53.6±7.9b | 53.0±7.9c\*\*\* |
| Gender(Male, %) | 3701 (37.7) | 3438 (37.3) | 3122 (33.1)\*\*\* | 3175 (34.1) | 3271 (34.5) | 3815 (39.5)\*\*\* | 3524 (37.2) | 3385 (36.5) | 3352 (34.6)\*\* |
| BMI | 23.9±2.8 | 23.9±2.9 | 24.0±2.9 | 23.9±2.9 | 23.9±2.8 | 24.0±2.9 | 24.0±2.8a | 23.9±2.8b | 23.8±2.9b\*\*\* |
| Energy intake (% of DRI) | 88.5±24.6b | 88.6±22.3b | 88.9±29.7a\*\*\* | 88.6±24.5 | 88.7±22.8 | 88.7±30.6 | 88.6±23.6 | 88.7±21.3 | 88.7±30.7 |
| CHO percent (En%) | 72.3±6.9a | 72.0±6.2b | 71.5±6.7c\*\*\* | 72.4±5.9a | 72.2±5.6b | 71.3±6.9c\*\*\* | 71.0±7.0c | 71.9±6.0b | 72.8±6.4a\*\*\* |
| Fat percent(En%) | 13.9±5.5a | 13.7±4.9b | 13.4±4.9c\*\*\* | 13.8±4.7a | 13.8±4.5b | 13.3±5.2c\*\*\* | 12.9±5.0a | 13.6±4.5b | 14.4±4.9c\*\*\* |
| Protein Percent (En%) | 12.7±2.2c | 13.4±2.2b | 14.1±2.6a\*\*\* | 12.4±2.2c | 12.9±2.1b | 14.9±2.7a\*\*\* | 13.5±3.0a | 13.2±2.3b | 13.5±2.3a\* |
| Na intake (mg/1000 kcal) | 1862±906c | 2429±935b | 3180±1625a\*\*\* | 2791±1416a | 2442±1241b | 2263±1527c\*\*\* | 2987±1625a | 2390±1195b | 2123±1381c\*\*\* |
| Alcohol intake (g/day) | 1.75±3.96 | 1.74±4.04 | 1.91±10.9 | 1.68±3.92a | 1.71±4.05a | 2.01±10.7b\*\* | 2.54±11.1a | 1.77±3.92b | 1.15±3.73c\*\*\* |
| Coffee intake (g/day) | 3.74±4.41b | 4.71±4.81a | 4.74±5.00a\*\*\* | 5.04±5.07a | 4.21±4.51b | 3.88±4.68c\*\* | 4.51±4.40a | 4.64±4.78a | 4.05±4.98b\*\*\* |

BMI, Body mass index; DRI, Dietary reference intake; CHO, Carbohydrate.

Adjusting for BMI, residence age, gender, area, BMI, and energy intake.

T1, T2, and T3 indicated the lowest, middle and highest tertiles of the intake of each diet pattern.

The cutpoint of dietary pattern scores for T1 and T2 was -0.470 and 0.146 in the traditional balanced diet pattern, -0.405 and 0.09 for flour-rich Western diet and -0.451 and 0.07 in rice-rich diet pattern, respectively.

\*Significantly different from major allele in logistic regression analysis at P<0.05, \*\* P<0.01, \*\*\* P<0.001.

a,b,c Means without a common letter differ in the same row by Tukey test at P < 0.05.