**Supplemental Data**

“A Reverse J-Shaped Association Between Adherence to Planetary Health Diet and All-Cause and Cause-Specific Mortality in Japan: A Cross-Sectional Prefecture-Level Ecological Study”

**SUPPLEMENTARY TABLES**

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**Supplementary Table 1:** Criteria for the EAT-Lancet diet index constructed to evaluate the planetary health diet

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Food components in the EAT-Lancet diet indexa | Target intake (reference interval)b | **3 points** | **2 points** | **1 point** | **0 points** | **Criteria for score distribution** |
| Food groups | Food items |
| Vegetables | Cabbage, spinach, Chinese cabbage, leeks, lettuce, broccoli, bean sprouts, other leafy greens, daikon radish, carrots, burdock root, onion, lotus root, bamboo shoots, other root vegetables, cucumber, eggplant, tomato, green pepper, fresh shiitake mushroom, shimeji mushroom, enoki mushroom, other mushrooms, other vegetables, dried shiitake mushroom, dried plums, pickled daikon radish, pickled Chinese cabbage, other pickled vegetables | 300 (200–600) | > 300 | 200–300 | 100–199 | < 100 | Positive score 3 points = intake above the target intake 2 points = lower limit of reference interval up to target intake 1 point = 50%–<100% of the lower limit of the reference interval 0 points = < 50% of the lower limit of the reference interval |
| Fruits | Apples, mandarins, oranges, other citrus fruits, pears, grapes, persimmons, peaches, watermelons, melons, strawberries, bananas, kiwifruit, other fruits | 200 (100–300) | > 200 | 100–200 | 50–99 | < 50 |
| Unsaturated oils | MUFAs, PUFAs | 40 (20–80) | > 40 | 20–40 | 10–19 | < 10 |
| Grains | Rice, bread, other bread, raw udon, raw soba noodles, dried udon, dried soba noodles, pasta, Chinese noodles, cup noodles, instant noodles, other noodles, wheat flour, rice cake, other grains | 232 | > 232 | 116–232 | 58–115 | < 58 | Positive score3 points = intake above the target intake 2 points = 50%–100% of target intake 1 point = 25%–<50% target intake 0 points = 0%–<25% of target intake |
| Fish | Tuna, horse mackerel, sardine, bonito, flounder, salmon, mackerel, pike, sea ​​bream, yellowtail,squid, octopus, shrimp, crab, other fresh fish,plate of assorted sashimi (raw sliced fish, shellfish or crustaceans), clams, freshwater clams, oysters, scallops, other shellfish,salted salmon, cod roe, dried whitebait, dried horse mackerel, other salted and dried seafood,fried kamaboko, chikuwa (a tubular roll of boiled fish paste), fish cake, other fish paste products, dried fish shaved, seafood pickles,seafood simmered down in sweetened soy sauce, canned seafood, and other processed seafood products | 28 (0–100) | > 28 | 14–28 | 7–13 | < 7 |
| Legumes | Pods, beans, tofu, fried tofu, ganmodoki (deep-fried tofu mixed with thinly sliced vegetables), natto (fermented soybeans), and other soybean products. | 75 (0–100) | > 75 | 37.5–75 | 18.75–37.4 | < 18.75 |
| Nuts | Peanuts | 50 (0–75) | > 50 | 25–50 | 12.5–24 | < 12.5 |
| Tubers or starchy vegetables | Sweet potatoes, potatoes, taros, pumpkins | 50 (0–100) | < 50 | 50–100 | 101–200 | > 200 | Inverse score 3 points = intake below the target intake 2 points = target intake to the upper limit of the reference interval 1 point = >100%–200% of the upper limit of the reference interval 0 points = > 200% of the upper limit of the reference interval |
| Dairy foods | Milk, powdered milk, yoghurt, butter, cheese, other dairy products | 250 (0–500) | < 250 | 250–500 | 501–1000 | > 1000 |
| Beef and pork | Beef, pork, ground meat, other fresh meat, ham, sausage, bacon, other processed meat | 14 (0–28) | < 14 | 14–28 | 29–56 | > 56 |
| Poultry | Chicken | 29 (0–58) | < 29 | 29–58 | 59–116 | > 116 |
| Eggs | Eggs | 13 (0–25) | < 13 | 13–25 | 26–50 | > 50 |
| Saturated oilsc | SFAs | 11.8 (0–11.8) | < 11.8 | 11.8–23.6 | 23.7–47.2 | > 47.2 |
| Added sugarc | Total sugar(glucose, fructose, galactose, sucrose, maltose, lactose) | 31 (0–31) | < 31 | 31–61 | 62–124 | > 124 |

a Food components are based on the EAT-Lancet diet. Unsaturated and saturated oils were evaluated by dietary MUFAs, PUFAs, and SFA intake, respectively, since no information about olive oil, palm oil, or lard was available.

b Target and reference values from the EAT-Lancet diet based on an energy intake of 2500 kcal, expressed in grams.

c Since the upper limits of the reference interval and target were identical, we used an upper reference interval of target intake × 2 according to previous studies.

**Supplementary Table 2:** Demographic and lifestyle characteristics of Japan prefecture-level

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Prefecture | Population (per thousand people) | People aged ≥ 65 years (%) | Women (%) | Population density(people/km2) | Gini coefficient | Gross domestic product (per billion yen) | BMI (kg/m2) | Smoker (%) | Alcohol drinker (%) | Steps (step/day) | PHD score | Groups of PHD scores |
| Hokkaidō | 5099 | 32.8 | 52.8 | 66.6 | 0.276 | 19725.6 | 23.1 | 20.1 | 40.7 | 6680 | 25 | Medium-low |
| Aomori | 1198 | 34.5 | 52.8 | 128.3 | 0.292 | 4456.6 | 23.8 | 20.4 | 43.0 | 6700 | 25 | Medium-low |
| Iwate | 1172 | 34.5 | 51.7 | 79.2 | 0.259 | 4747.4 | 23.5 | 19.0 | 43.2 | 6365 | 27 | High |
| Miyagi | 2256 | 29.2 | 51.2 | 316.1 | 0.284 | 9485.2 | 23.9 | 18.3 | 43.2 | 6573 | 26 | Medium-high |
| Akita | 926 | 38.4 | 52.7 | 82.4 | 0.271 | 3530.5 | 23.4 | 18.2 | 44.1 | 6581 | 25 | Medium-low |
| Yamagata | 1034 | 34.7 | 51.5 | 114.6 | 0.288 | 4284.2 | 23.5 | 17.7 | 43.5 | 6484 | 26 | Medium-high |
| Fukushima | 1776 | 32.6 | 50.6 | 133.0 | 0.278 | 7828.6 | 24.4 | 21.4 | 40.8 | 6879 | 27 | High |
| Ibaraki | 2767 | 30.6 | 50.1 | 470.2 | 0.265 | 13771.3 | 23.4 | 17.9 | 37.6 | 6957 | 27 | High |
| Tochigi | 1864 | 30.2 | 50.1 | 301.7 | 0.303 | 8946.5 | 23.3 | 19.0 | 38.6 | 7078 | 27 | High |
| Gunma | 1850 | 31.2 | 50.6 | 304.8 | 0.289 | 8653.5 | 23.5 | 17.2 | 38.2 | 6694 | 27 | High |
| Saitama | 7136 | 27.5 | 50.4 | 1934.0 | 0.272 | 22922.6 | 23.2 | 16.5 | 41.4 | 7590 | 25 | Medium-low |
| Chiba | 6100 | 28.2 | 50.4 | 1218.5 | 0.281 | 20775.6 | 23.2 | 15.9 | 41.2 | 7576 | 26 | Medium-high |
| Tokyo | 13443 | 23.4 | 50.9 | 6402.6 | 0.303 | 109601.6 | 22.7 | 13.5 | 45.1 | 7917 | 25 | Medium-low |
| Kanagawa | 8990 | 26.0 | 50.4 | 3823.2 | 0.267 | 33905.5 | 22.9 | 14.7 | 42.3 | 7923 | 25 | Medium-low |
| Niigata | 2136 | 33.5 | 51.4 | 174.9 | 0.264 | 8857.5 | 23.0 | 17.5 | 44.3 | 6596 | 27 | High |
| Toyama | 998 | 33.0 | 51.4 | 243.6 | 0.261 | 4729.9 | 23.2 | 16.0 | 40.7 | 6644 | 26 | Medium-high |
| Ishikawa | 1102 | 30.4 | 51.5 | 270.5 | 0.256 | 4527.7 | 23.0 | 15.8 | 40.6 | 6847 | 25 | Medium-low |
| Fukui | 738 | 31.2 | 51.1 | 183.0 | 0.258 | 3571.1 | 23.4 | 15.7 | 38.7 | 7133 | 25 | Medium-low |
| Yamanashi | 783 | 31.8 | 50.8 | 181.4 | 0.287 | 3552.7 | 23.0 | 17.2 | 38.4 | 7025 | 26 | Medium-high |
| Nagano | 1983 | 32.5 | 51 | 151.0 | 0.267 | 8214.1 | 23.4 | 15.4 | 41.3 | 6868 | 26 | Medium-high |
| Gifu | 1888 | 31.3 | 51.5 | 186.3 | 0.279 | 7663.0 | 23.1 | 15.6 | 37.0 | 7601 | 24 | Low  |
| Shizuoka | 3484 | 31.1 | 50.7 | 467.2 | 0.27 | 17105.2 | 22.8 | 16.2 | 36.5 | 7814 | 26 | Medium-high |
| Aichi | 7228 | 26.0 | 50.2 | 1458.0 | 0.286 | 39659.3 | 23.1 | 15.3 | 37.1 | 7052 | 26 | Medium-high |
| Mie | 1689 | 30.8 | 51.2 | 306.6 | 0.282 | 8273.1 | 22.9 | 15.9 | 35.1 | 6782 | 25 | Medium-low |
| Shiga | 1373 | 27.1 | 50.8 | 351.9 | 0.262 | 6739.7 | 23.0 | 14.0 | 39.0 | 7523 | 25 | Medium-low |
| Kyōto | 2485 | 29.8 | 52.3 | 559.0 | 0.28 | 10168.0 | 22.7 | 13.6 | 41.1 | 8024 | 25 | Medium-low |
| Ōsaka | 8524 | 27.4 | 52.2 | 4638.4 | 0.301 | 39720.3 | 23.3 | 15.8 | 41.1 | 7939 | 24 | Low  |
| Hyōgo | 5287 | 29.2 | 52.5 | 650.5 | 0.282 | 21735.9 | 23.1 | 14.1 | 40.4 | 7273 | 24 | Low  |
| Nara | 1291 | 32.1 | 53 | 358.8 | 0.272 | 3685.9 | 22.9 | 14.1 | 37.7 | 7654 | 24 | Low  |
| Wakayama | 896 | 33.5 | 52.8 | 195.3 | 0.303 | 3625.1 | 23.1 | 16.2 | 36.9 | 6383 | 25 | Medium-low |
| Tottori | 539 | 33.0 | 52.1 | 157.8 | 0.278 | 1819.9 | 22.8 | 16.0 | 38.0 | 6260 | 25 | Medium-low |
| Shimane | 648 | 35.0 | 51.5 | 100.1 | 0.262 | 2575.7 | 23.3 | 15.4 | 40.5 | 6680 | 23 | Low  |
| Okayama | 1832 | 30.9 | 51.9 | 265.4 | 0.281 | 7606.4 | 23.8 | 15.3 | 36.7 | 7049 | 24 | Low  |
| Hiroshima | 2708 | 30.2 | 51.6 | 330.2 | 0.251 | 11555.4 | 23.0 | 14.4 | 41.0 | 7586 | 24 | Low  |
| Yamaguchi | 1297 | 35.1 | 52.5 | 219.6 | 0.268 | 6148.1 | 23.0 | 15.1 | 37.8 | 7372 | 22 | Low  |
| Tokushima | 698 | 34.3 | 52.1 | 173.5 | 0.285 | 3185.2 | 23.0 | 15.1 | 35.0 | 6541 | 26 | Medium-high |
| Kagawa | 920 | 32.1 | 51.7 | 506.3 | 0.271 | 3734.4 | 23.4 | 15.6 | 34.5 | 6953 | 25 | Medium-low |
| Ehime | 1294 | 33.6 | 52.6 | 235.2 | 0.313 | 4827.5 | 23.6 | 14.9 | 36.6 | 7372 | 24 | Low  |
| Kōchi | 671 | 35.9 | 52.8 | 97.3 | 0.324 | 2354.3 | 23.9 | 16.6 | 37.9 | 5749 | 24 | Low  |
| Fukuoka | 5031 | 28.3 | 52.7 | 1029.8 | 0.29 | 18886.9 | 22.8 | 17.6 | 43.0 | 7307 | 24 | Low  |
| Saga | 794 | 31.2 | 52.6 | 332.5 | 0.278 | 3045.9 | 23.3 | 16.7 | 41.1 | 6951 | 24 | Low  |
| Nagasaki | 1273 | 33.8 | 53 | 317.7 | 0.281 | 4538.7 | 23.2 | 17.2 | 37.2 | 6996 | 26 | Medium-high |
| Kumamoto | 1700 | 32.2 | 52.6 | 234.6 | 0.275 | 6105.1 | 23.4 | 17.8 | 41.8 | 6818 | 25 | Medium-low |
| Ōita | 1092 | 33.9 | 52.5 | 177.2 | 0.281 | 4458.0 | 23.1 | 16.9 | 38.9 | 7261 | 23 | Low  |
| Miyazaki | 1045 | 33.2 | 52.8 | 138.3 | 0.29 | 3602.5 | 24.3 | 17.8 | 41.9 | 6457 | 25 | Medium-low |
| Kagoshima | 1550 | 33.2 | 52.7 | 172.9 | 0.29 | 5610.3 | 23.6 | 16.4 | 41.8 | 6982 | 23 | Low  |
| Okinawa | 1446 | 23.4 | 50.9 | 642.9 | 0.332 | 4260.9 | 24.0 | 17.1 | 41.6 | 6444 | 25 | Medium-low |

All variables show mean values. Japan is divided into 47 prefectures, and the capital is Tokyo. They include 43 prefectures proper (ken), two urban prefectures (fu: Osaka and Kyoto), one regional prefecture (dō: Hokkaidō) and one metropolis (to: Tokyo). These rank immediately below the national government and form the country's first level of jurisdiction and administrative division.

**Supplementary Table 3:** Components of adherence score to the planetary health diet of Japan prefecture-level

|  |  |
| --- | --- |
| Prefecture | Component of adherence score to planetary health diet |
| Vegetables | Fruits | Unsaturated oils | Grains | Fish | Legumes | Nuts | Tubers or starchy vegetables | Dairy foods | Beef and pork | Poultry | Eggs | Saturated oils | Added sugar |
| Hokkaidō | 2 | 2 | 3 | 2 | 3 | 2 | 0 | 3 | 3 | 0 | 2 | 1 | 1 | 1 |
| Aomori | 2 | 2 | 3 | 2 | 3 | 2 | 0 | 3 | 3 | 0 | 3 | 0 | 1 | 1 |
| Iwate | 2 | 2 | 3 | 2 | 3 | 2 | 0 | 3 | 3 | 0 | 3 | 1 | 2 | 1 |
| Miyagi | 2 | 2 | 3 | 2 | 3 | 2 | 0 | 3 | 3 | 0 | 3 | 1 | 1 | 1 |
| Akita | 2 | 2 | 3 | 2 | 3 | 2 | 0 | 3 | 3 | 0 | 3 | 0 | 1 | 1 |
| Yamagata | 2 | 2 | 3 | 2 | 3 | 2 | 0 | 3 | 3 | 0 | 3 | 1 | 1 | 1 |
| Fukushima | 2 | 2 | 3 | 2 | 3 | 2 | 0 | 3 | 3 | 0 | 3 | 1 | 2 | 1 |
| Ibaraki | 2 | 2 | 3 | 2 | 3 | 2 | 0 | 3 | 3 | 0 | 3 | 1 | 2 | 1 |
| Tochigi | 2 | 2 | 3 | 2 | 3 | 2 | 0 | 3 | 3 | 0 | 3 | 1 | 2 | 1 |
| Gunma | 2 | 2 | 3 | 2 | 3 | 2 | 0 | 3 | 3 | 0 | 3 | 1 | 2 | 1 |
| Saitama | 2 | 1 | 3 | 2 | 3 | 2 | 0 | 3 | 3 | 0 | 3 | 1 | 1 | 1 |
| Chiba | 2 | 2 | 3 | 2 | 3 | 2 | 0 | 3 | 3 | 0 | 3 | 1 | 1 | 1 |
| Tokyo | 2 | 1 | 3 | 2 | 3 | 2 | 0 | 3 | 3 | 0 | 3 | 1 | 1 | 1 |
| Kanagawa | 2 | 1 | 3 | 2 | 3 | 2 | 0 | 3 | 3 | 0 | 3 | 1 | 1 | 1 |
| Niigata | 2 | 2 | 3 | 2 | 3 | 3 | 0 | 3 | 3 | 0 | 3 | 0 | 2 | 1 |
| Toyama | 2 | 1 | 3 | 2 | 3 | 2 | 0 | 3 | 3 | 0 | 3 | 1 | 2 | 1 |
| Ishikawa | 2 | 1 | 3 | 2 | 3 | 2 | 0 | 3 | 3 | 0 | 3 | 1 | 1 | 1 |
| Fukui | 1 | 1 | 3 | 2 | 3 | 2 | 0 | 3 | 3 | 0 | 3 | 0 | 2 | 2 |
| Yamanashi | 2 | 2 | 3 | 2 | 3 | 2 | 0 | 3 | 3 | 0 | 3 | 1 | 1 | 1 |
| Nagano | 2 | 2 | 3 | 2 | 3 | 2 | 0 | 3 | 3 | 0 | 3 | 1 | 1 | 1 |
| Gifu | 2 | 1 | 3 | 2 | 3 | 2 | 0 | 3 | 3 | 0 | 3 | 0 | 1 | 1 |
| Shizuoka | 2 | 1 | 3 | 2 | 3 | 2 | 0 | 3 | 3 | 0 | 3 | 1 | 2 | 1 |
| Aichi | 2 | 2 | 3 | 2 | 3 | 2 | 0 | 3 | 3 | 0 | 3 | 1 | 1 | 1 |
| Mie | 2 | 2 | 3 | 2 | 3 | 2 | 0 | 3 | 3 | 0 | 3 | 0 | 1 | 1 |
| Shiga | 2 | 1 | 3 | 2 | 3 | 2 | 0 | 3 | 3 | 0 | 3 | 1 | 1 | 1 |
| Kyōto | 2 | 2 | 3 | 2 | 3 | 2 | 0 | 3 | 3 | 0 | 2 | 1 | 1 | 1 |
| Ōsaka | 2 | 1 | 3 | 2 | 3 | 2 | 0 | 3 | 3 | 0 | 2 | 1 | 1 | 1 |
| Hyōgo | 2 | 2 | 3 | 2 | 3 | 2 | 0 | 3 | 3 | 0 | 2 | 0 | 1 | 1 |
| Nara | 2 | 2 | 3 | 2 | 3 | 2 | 0 | 3 | 3 | 0 | 2 | 0 | 1 | 1 |
| Wakayama | 2 | 2 | 3 | 3 | 3 | 2 | 0 | 3 | 3 | 0 | 2 | 0 | 1 | 1 |
| Tottori | 2 | 2 | 3 | 2 | 3 | 2 | 0 | 3 | 3 | 0 | 3 | 0 | 1 | 1 |
| Shimane | 2 | 1 | 3 | 2 | 3 | 2 | 0 | 3 | 3 | 0 | 2 | 0 | 1 | 1 |
| Okayama | 2 | 1 | 3 | 2 | 3 | 2 | 0 | 3 | 3 | 0 | 2 | 1 | 1 | 1 |
| Hiroshima | 2 | 1 | 3 | 2 | 3 | 2 | 0 | 3 | 3 | 0 | 2 | 1 | 1 | 1 |
| Yamaguchi | 1 | 1 | 3 | 2 | 3 | 2 | 0 | 3 | 3 | 0 | 2 | 0 | 1 | 1 |
| Tokushima | 2 | 2 | 3 | 2 | 3 | 2 | 0 | 3 | 3 | 0 | 3 | 1 | 1 | 1 |
| Kagawa | 2 | 2 | 3 | 2 | 3 | 2 | 0 | 3 | 3 | 0 | 3 | 0 | 1 | 1 |
| Ehime | 2 | 2 | 3 | 2 | 3 | 2 | 0 | 3 | 3 | 0 | 2 | 0 | 1 | 1 |
| Kōchi | 1 | 1 | 3 | 2 | 3 | 2 | 0 | 3 | 3 | 0 | 3 | 0 | 2 | 1 |
| Fukuoka | 2 | 1 | 3 | 2 | 3 | 2 | 0 | 3 | 3 | 0 | 2 | 1 | 1 | 1 |
| Saga | 2 | 1 | 3 | 2 | 3 | 2 | 0 | 3 | 3 | 0 | 2 | 1 | 1 | 1 |
| Nagasaki | 2 | 2 | 3 | 2 | 3 | 2 | 0 | 3 | 3 | 0 | 3 | 1 | 1 | 1 |
| Kumamoto | 2 | 1 | 3 | 2 | 3 | 2 | 0 | 3 | 3 | 0 | 2 | 1 | 1 | 2 |
| Ōita | 2 | 1 | 3 | 2 | 3 | 2 | 0 | 3 | 3 | 0 | 2 | 0 | 1 | 1 |
| Miyazaki | 2 | 2 | 3 | 2 | 3 | 2 | 0 | 3 | 3 | 0 | 2 | 1 | 1 | 1 |
| Kagoshima | 2 | 1 | 3 | 2 | 3 | 2 | 0 | 3 | 3 | 0 | 2 | 0 | 1 | 1 |
| Okinawa | 2 | 1 | 3 | 2 | 3 | 2 | 0 | 3 | 3 | 0 | 3 | 0 | 1 | 2 |

All variables show the score.

**Supplementary Table 4:** Association between food and beverage consumption and adherence to planetary health diet score

|  |  |  |  |
| --- | --- | --- | --- |
| 　 | Total(n = 47) | Groups of the planetary health diet score | *r*a |
| Low (n = 14) | Medium-low (n = 17) | Medium-high (n = 10) | High (n = 6) |
| Energy [kcal/d] | 1577 | 1547 | 1604 | 1602 | 1595 | 0.24 |
| Food weight [g/d] | 1237 | 1213 | 1257 | 1252 | 1297 | 0.37 |
| Cereals [g/2500kcal/d] | 208.9 | 207.7 | 211.4 | 209.3 | 211.1 | 0.08 |
| Potatoes [g/2500kcal/d] | 25.7 | 25.9 | 25.6 | 26.8 | 24.8 | 0.05 |
| Sugar [g/2499kcal/d] | 5.6 | 6.1 | 5.4 | 5.5 | 5.6 | -0.16 |
| Pulses [g/2500kcal/d] | 57.6 | 56.1 | 56.7 | 60.0 | 63.4 | 0.53 |
| Nuts [g/2500kcal/d] | 1.3 | 1.2 | 1.2 | 1.3 | 1.2 | 0.15 |
| Vegetables [g/2500kcal/d] | 218.1 | 211.2 | 215.0 | 220.5 | 226.1 | 0.38 |
| Fruits [g/2500kcal/d] | 105.6 | 100.2 | 105.8 | 107.7 | 110.2 | 0.41 |
| Mushrooms [g/2500kcal/d] | 14.5 | 14.0 | 14.7 | 15.1 | 15.1 | 0.30 |
| Seaweeds [g/2500kcal/d] | 2.8 | 2.6 | 2.8 | 3.2 | 3.3 | 0.55 |
| Fish and shellﬁsh [g/2500kcal/d] | 55.9 | 55.6 | 55.5 | 57.0 | 55.7 | 0.07 |
| Meat [g/2500kcal/d] | 93.6 | 97.7 | 93.4 | 90.2 | 86.1 | -0.61 |
|  Red meat [g/2500kcal/d] | 47.6 | 50.7 | 49.4 | 45.9 | 43.7 | -0.56 |
|  Processed meat [g/2500kcal/d] | 18.6 | 18.3 | 18.7 | 18.8 | 18.9 | 0.18 |
|  Chicken [g/2500kcal/d] | 26.9 | 30.0 | 27.9 | 25.5 | 22.5 | -0.76 |
| Eggs [g/2500kcal/d] | 48.5 | 50.9 | 48.8 | 46.9 | 45.9 | -0.55 |
| Dairy products [g/2500kcal/d] | 186.4 | 187.1 | 183.2 | 188.2 | 195.2 | 0.25 |
| Oil [g/2500kcal/d] | 14.3 | 14.5 | 14.4 | 14.1 | 14.2 | -0.23 |
| Confectioneries [g/2500kcal/d] | 63.4 | 62.8 | 63.8 | 63.4 | 66.4 | 0.24 |
| Alcoholic beverages [g/2500kcal/d] | 143.2 | 144.0 | 145.7 | 137.0 | 145.2 | -0.09 |
| Non-alcoholic beverages [g/2500kcal/d] | 315.1 | 306.4 | 311.7 | 317.8 | 356.3 | 0.33 |
| Seasonings [g/2500kcal/d] | 54.4 | 54.2 | 54.9 | 53.2 | 56.0 | -0.01 |
| Cooked foods [g/2500kcal/d] | 234.8 | 235.3 | 234.3 | 241.9 | 231.6 | 0.05 |
| Water | 107.2 | 107.3 | 106.2 | 109.1 | 126.7 | 0.05 |

All values are shown as medians or correlation coefficients. Food and beverages were adjusted for 2500 kcal/d of energy via the nutrient density method. Values are shown as medians in each group.

a Spearman’s correlation analysis was used to evaluate the relationship between nutrient intake and adherence score

**Supplementary Table 5:** Association between food and beverage according to food group for planetary health diet and adherence to the planetary health diet score

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Total |  | Groups of the planetary health diet score | *r*2a |
|  | Low  | Medium-low | Medium-high | High |
| Mean  | SD | 　 | Mean  | SD | Mean  | SD | Mean  | SD | Mean  | SD |
| Vegetables [g/2500kcal/d] | 221 | 14 |  | 213 | 11 | 222 | 17 | 225 | 13 | 230 | 7 | 0.40 |
| Fruits [g/2500kcal/d] | 100 | 8 |  | 97 | 9 | 99 | 10 | 103 | 6 | 107 | 2 | 0.41 |
| Unsaturated oils [g/2500kcal/d] | 47 | 1 |  | 47 | 1 | 47 | 1 | 46 | 1 | 46 | 1 | -0.41 |
| Grains [g/2500kcal/d] | 210 | 11 |  | 208 | 5 | 212 | 15 | 210 | 8 | 210 | 8 | 0.08 |
| Fish [g/2500kcal/d] | 57 | 6 |  | 56 | 5 | 57 | 9 | 58 | 4 | 56 | 3 | 0.07 |
| Legumes [g/2500kcal/d] | 60 | 4 |  | 58 | 4 | 58 | 5 | 63 | 4 | 67 | 4 | 0.55 |
| Nuts [g/2500kcal/d] | 1 | 0 |  | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0.15 |
| Tubers or starchy vegetables [g/2500kcal/d] | 24 | 2 |  | 25 | 2 | 24 | 2 | 25 | 2 | 24 | 3 | 0.00 |
| Dairy foods [g/2500kcal/d] | 169 | 12 |  | 167 | 12 | 166 | 12 | 172 | 14 | 176 | 10 | 0.28 |
| Beef and pork [g/2500kcal/d] | 67 | 4 |  | 68 | 4 | 68 | 4 | 65 | 5 | 63 | 4 | -0.38 |
| Poultry [g/2500kcal/d] | 27 | 3 |  | 30 | 3 | 28 | 3 | 25 | 2 | 23 | 2 | -0.76 |
| Eggs [g/2500kcal/d] | 48 | 4 |  | 51 | 3 | 49 | 5 | 46 | 3 | 45 | 3 | -0.55 |
| Saturated oils [g/2500kcal/d] | 24 | 0 |  | 25 | 1 | 24 | 0 | 24 | 0 | 23 | 0 | -0.67 |
| Added sugar [g/2500kcal/d] | 65 | 2 | 　 | 65 | 2 | 64 | 2 | 65 | 2 | 66 | 2 | 0.16 |

All values are shown as mean and standard deviation (SD) or correlation coefficients in each group. Food and beverages were adjusted for 2500 kcal/d of energy via the nutrient-density method.

a Spearman’s correlation analysis was used to evaluate the relationship between nutrient intake and adherence score

**Supplementary Table 6:** Contribution to diet-related greenhouse gas emissions by each food and beverage

|  |  |
| --- | --- |
| 　 | Diet-related greenhouse gas emissions (g-CO2-eq/2500 kcal energy/d) |
| Total |  | Groups of the planetary health diet score |
|  | Low  | Medium-low | Medium-high | High |
| Mean  | SD | %a | 　 | Mean  | SD | % a | Mean  | SD | % a | Mean  | SD | % a | Mean  | SD | % a |
| Total | 4456 | 74 | 100 |  | 4507 | 70 | 100 | 4476 | 79 | 100 | 4418 | 90 | 100 | 4344 | 23 | 100 |
| Food groups |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Cereals | 570 | 28 | 12.8 |  | 572 | 19 | 12.7 | 572 | 39 | 12.8 | 567 | 21 | 12.8 | 560 | 23 | 12.9 |
| Potatoes | 155 | 24 | 3.5 |  | 151 | 12 | 3.3 | 151 | 22 | 3.4 | 162 | 38 | 3.7 | 162 | 18 | 3.7 |
| Sugar | 13 | 2 | 0.3 |  | 13 | 2 | 0.3 | 12 | 2 | 0.3 | 13 | 2 | 0.3 | 12 | 1 | 0.3 |
| Pulses | 110 | 10 | 2.5 |  | 106 | 6 | 2.4 | 106 | 9 | 2.4 | 116 | 8 | 2.6 | 124 | 3 | 2.9 |
| Nuts | 3 | 0 | 0.1 |  | 3 | 0 | 0.1 | 3 | 1 | 0.1 | 3 | 0 | 0.1 | 3 | 0 | 0.1 |
| Vegetables | 188 | 17 | 4.2 |  | 177 | 11 | 3.9 | 189 | 20 | 4.2 | 192 | 15 | 4.4 | 200 | 10 | 4.6 |
| Fruits | 119 | 10 | 2.7 |  | 115 | 10 | 2.6 | 117 | 11 | 2.6 | 122 | 8 | 2.8 | 127 | 4 | 2.9 |
| Mushrooms | 47 | 4 | 1.1 |  | 45 | 3 | 1.0 | 47 | 5 | 1.0 | 49 | 4 | 1.1 | 49 | 3 | 1.1 |
| Seaweeds | 12 | 3 | 0.3 |  | 10 | 1 | 0.2 | 12 | 4 | 0.3 | 14 | 3 | 0.3 | 14 | 3 | 0.3 |
| Fish and shellﬁsh | 397 | 58 | 8.9 |  | 403 | 32 | 9.0 | 411 | 85 | 9.2 | 382 | 27 | 8.7 | 363 | 27 | 8.3 |
| Meat | 732 | 82 | 16.4 |  | 796 | 59 | 17.7 | 753 | 49 | 16.8 | 683 | 63 | 15.5 | 603 | 30 | 13.9 |
|  Red meat | 490 | 74 | 11.0 |  | 549 | 53 | 12.2 | 506 | 49 | 11.3 | 448 | 54 | 10.1 | 376 | 24 | 8.6 |
|  Processed meat | 95 | 13 | 2.1 |  | 106 | 9 | 2.4 | 97 | 10 | 2.2 | 87 | 8 | 2.0 | 79 | 6 | 1.8 |
|  Chicken | 146 | 13 | 3.3 |  | 141 | 10 | 3.1 | 149 | 15 | 3.3 | 148 | 12 | 3.4 | 148 | 9 | 3.4 |
| Eggs | 88 | 7 | 2.0 |  | 92 | 5 | 2.1 | 89 | 9 | 2.0 | 84 | 5 | 1.9 | 83 | 6 | 1.9 |
| Dairy products | 355 | 24 | 8.0 |  | 349 | 21 | 7.7 | 348 | 22 | 7.8 | 362 | 25 | 8.2 | 379 | 21 | 8.7 |
| Oil | 51 | 4 | 1.2 |  | 52 | 4 | 1.2 | 51 | 4 | 1.1 | 50 | 4 | 1.1 | 50 | 3 | 1.2 |
| Confectioneries  | 314 | 14 | 7.0 |  | 313 | 12 | 6.9 | 312 | 17 | 7.0 | 313 | 10 | 7.1 | 323 | 17 | 7.4 |
| Alcoholic beverages | 334 | 19 | 7.5 |  | 334 | 18 | 7.4 | 334 | 20 | 7.5 | 329 | 21 | 7.4 | 343 | 17 | 7.9 |
| Non-alcoholic beverages | 114 | 13 | 2.6 |  | 114 | 13 | 2.5 | 117 | 16 | 2.6 | 111 | 12 | 2.5 | 115 | 12 | 2.7 |
| Seasonings | 135 | 5 | 3.0 |  | 136 | 5 | 3.0 | 134 | 6 | 3.0 | 133 | 5 | 3.0 | 136 | 6 | 3.1 |
| Cooked foods | 709 | 65 | 15.9 |  | 713 | 48 | 15.8 | 706 | 81 | 15.8 | 723 | 59 | 16.4 | 685 | 71 | 15.8 |
| Water | 11 | 2.9 | 0.3 | 　 | 11 | 2 | 0.2 | 12 | 4 | 0.3 | 11 | 1.6 | 0.2 | 12 | 3.2 | 0.3 |

SD, standard deviation

a Calculated as the mean value (%) of diet-related greenhouse gas emissions with food and beverage group level divided by the mean total diet-related greenhouse gas emissions.