**Supplement Table 1a** Sample characteristics by quartiles of meal specific traditional dietary patterns

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Quartiles of dietary patterns | | | |  |
|  | Q1 | Q2 | Q3 | Q4 | p-value |
| N | 264 | 264 | 264 | 264 |  |
| **Traditional breakfast** |  |  |  |  |  |
| *Macronutrients/foods intake by eating occasion* |  |  |  |  |  |
| Energy intake (kcal/d), mean (SD) | 504.2 (182.7) | 400.1 (188.0) | 479.1 (232.4) | 722.6 (275.8) | <0.001 |
| Fat (g/d), mean (SD) | 11.1 (12.9) | 8.9 (12.5) | 12.7 (15.8) | 18.1 (13.5) | <0.001 |
| Carbohydrate (g/d), mean (SD) | 88.5 (26.9) | 69.6 (25.1) | 77.8 (31.0) | 118.7 (50.2) | <0.001 |
| Protein (g/d), mean (SD) | 12.5 (4.7) | 10.4 (6.3) | 13.0 (7.1) | 21.3 (8.9) | <0.001 |
| Rice, mean (SD) | 104.1 (37.1) | 75.2 (29.8) | 63.2 (38.6) | 21.7 (31.0) | <0.001 |
| Wheat, mean (SD) | 0.9 (5.9) | 8.8 (17.6) | 33.5 (37.6) | 135.5 (68.9) | <0.001 |
| *Macronutrients intake each day* |  |  |  |  |  |
| Energy intake (kcal/d), mean (SD) | 1990.6 (583.3) | 1956.3 (974.1) | 1894.2 (590.8) | 2168.3 (912.9) | <0.001 |
| Fat (g/d), mean (SD) | 88.3 (36.0) | 79.9 (31.7) | 80.8 (35.9) | 78.3 (39.3) | 0.007 |
| Carbohydrate (g/d), mean (SD) | 335.2 (79.7) | 288.1 (75.3) | 300.3 (93.5) | 360.9 (118.8) | <0.001 |
| Protein (g/d), mean (SD) | 74.8 (19.6) | 69.0 (21.1) | 69.6 (21.8) | 75.4 (22.6) | <0.001 |
| Fat intake (% energy), mean (SD) | 31.9 (8.3) | 32.9 (8.1) | 32.4 (8.8) | 28.1 (9.8) | <0.001 |
| Age (years), mean (SD) | 50.1 (12.6) | 48.7 (13.6) | 48.5 (13.4) | 47.4 (13.1) | 0.14 |
| BMI (kg/m2), mean (SD) | 23.3 (3.4) | 23.1 (3.2) | 23.2 (3.6) | 23.5 (3.2) | 0.55 |
| Men (%) | 45.8 | 35.6 | 41.1 | 46.0 | 0.050 |
| Manual job (%) | 55.7 | 45.5 | 41.5 | 63.5 | <0.001 |
| Low education (%) | 52.7 | 53.4 | 50.2 | 54.8 | 0.39 |
| Leisure time physical activity >30 mins/day | 2.3 | 5.3 | 3.0 | 4.2 | 0.34 |
| Sedentary activity >2 hrs/day | 52.3 | 57.6 | 55.5 | 46.0 | 0.010 |
| Active commuting >30 mins/day | 9.1 | 3.4 | 9.1 | 24.3 | <0.001 |
| Smoker (%) | 31.4 | 24.6 | 27.2 | 27.4 | 0.37 |
| Alcohol drinker (%) | 31.1 | 22.0 | 22.3 | 27.0 | 0.051 |
| Hypertension (%) | 34.8 | 29.5 | 26.8 | 27.4 | 0.16 |
| Central obesity (%) | 30.3 | 24.2 | 27.3 | 34.4 | 0.068 |
| Incident hyperglycemia (%) | 15.9 | 13.6 | 11.7 | 6.1 | 0.004 |
| **Traditional lunch** |  |  |  |  |  |
| *Macronutrients/foods intake by eating occasion* |  |  |  |  |  |
| Energy intake (kcal/d), mean (SD) | 791.4 (324.2) | 784.4 (241.3) | 908.2 (212.8) | 1108.2 (274.4) | <0.001 |
| Fat (g/d), mean (SD) | 24.7 (23.2) | 30.7 (17.4) | 37.1 (17.2) | 45.3 (21.9) | <0.001 |
| Carbohydrate (g/d), mean (SD) | 109.1 (46.0) | 101.9 (36.5) | 113.6 (31.2) | 137.4 (39.7) | <0.001 |
| Protein (g/d), mean (SD) | 24.8 (10.7) | 25.0 (8.7) | 30.0 (8.0) | 37.8 (10.2) | <0.001 |
| Rice, mean (SD) | 50.1 (45.9) | 114.0 (37.1) | 134.5 (35.3) | 165.0 (46.8) | <0.001 |
| Wheat, mean (SD) | 76.2 (65.9) | 12.4 (25.8) | 2.8 (12.2) | 1.6 (8.6) | <0.001 |
| *Macronutrients intake each day* |  |  |  |  |  |
| Energy intake (kcal/d), mean (SD) | 2059.3 (904.6) | 1805.3 (599.7) | 1971.1 (933.4) | 2172.7 (624.2) | <0.001 |
| Fat (g/d), mean (SD) | 76.3 (41.6) | 73.4 (30.8) | 83.0 (32.5) | 94.6 (34.6) | <0.001 |
| Carbohydrate (g/d), mean (SD) | 328.2 (113.0) | 288.0 (90.7) | 308.6 (76.5) | 359.5 (92.3) | <0.001 |
| Protein (g/d), mean (SD) | 69.2 (23.5) | 62.8 (18.8) | 72.2 (18.9) | 84.5 (18.3) | <0.001 |
| Fat intake (% energy), mean (SD) | 29.2 (9.9) | 31.8 (8.9) | 32.4 (8.3) | 31.9 (8.3) | <0.001 |
| Age (years), mean (SD) | 48.8 (13.2) | 50.7 (14.0) | 47.8 (13.3) | 47.3 (11.9) | 0.014 |
| BMI (kg/m2), mean (SD) | 23.5 (3.6) | 23.1 (3.3) | 23.0 (3.3) | 23.6 (3.0) | 0.13 |
| Men (%) | 34.8 | 31.8 | 39.8 | 62.1 | <0.001 |
| Manual job (%) | 52.3 | 41.3 | 56.8 | 55.7 | 0.001 |
| Low education (%) | 12.1 | 11 | 9.8 | 12.5 | 0.14 |
| Leisure time physical activity >30 mins/day | 3.8 | 5.3 | 3.8 | 1.9 | 0.41 |
| Sedentary activity >2 hrs/day | 42.4 | 50.8 | 60.6 | 57.6 | <0.001 |
| Active commuting >30 mins/day | 16.7 | 7.2 | 12.5 | 9.5 | 0.002 |
| Smoker (%) | 24.6 | 19.3 | 25.8 | 40.9 | <0.001 |
| Alcohol drinker (%) | 25.0 | 17.0 | 24.6 | 35.6 | <0.001 |
| Hypertension (%) | 29.2 | 32.6 | 27.3 | 29.5 | 0.61 |
| Central obesity (%) | 35.4 | 27.3 | 24.6 | 28.9 | 0.046 |
| Incident hyperglycemia (%) | 5.3 | 9.1 | 15.9 | 17.0 | <0.001 |
| **Traditional dinner** |  |  |  |  |  |
| *Macronutrients/foods intake by eating occasion* |  |  |  |  |  |
| Energy intake (kcal/d), mean (SD) | 776.9 (304.9) | 713.4 (270.8) | 855.4 (213.0) | 1060.6 (285.5) | <0.001 |
| Fat (g/d), mean (SD) | 23.0 (18.1) | 26.7 (21.0) | 35.6 (18.1) | 45.6 (23.8) | <0.001 |
| Carbohydrate (g/d), mean (SD) | 117.6 (44.4) | 95.9 (32.9) | 104.6 (27.2) | 125.3 (37.2) | <0.001 |
| Protein (g/d), mean (SD) | 24.6 (10.6) | 22.3 (9.2) | 29.0 (9.1) | 37.3 (9.7) | <0.001 |
| Rice, mean (SD) | 20.6 (27.9) | 100.3 (33.6) | 121.8 (32.9) | 149.7 (43.2) | <0.001 |
| Wheat, mean (SD) | 140.4 (70.9) | 18.7 (33.2) | 4.9 (17.5) | 1.8 (8.8) | <0.001 |
| *Macronutrients intake each day* |  |  |  |  |  |
| Energy intake (kcal/d), mean (SD) | 2187.6 (926.6) | 1830.6 (567.5) | 1858.2 (558.1) | 2132.0 (957.8) | <0.001 |
| Fat (g/d), mean (SD) | 73.8 (38.2) | 72.7 (31.5) | 84.7 (31.2) | 96.1 (37.6) | <0.001 |
| Carbohydrate (g/d), mean (SD) | 360.1 (117.4) | 284.1 (83.5) | 297.2 (75.3) | 342.9 (88.3) | <0.001 |
| Protein (g/d), mean (SD) | 72.2 (23.3) | 61.6 (18.4) | 71.7 (20.3) | 83.3 (17.8) | <0.001 |
| Fat intake (% energy), mean (SD) | 27.2 (9.2) | 31.5 (8.7) | 33.6 (7.9) | 33.2 (8.5) | <0.001 |
| Age (years), mean (SD) | 47.5 (12.8) | 52.0 (13.8) | 49.2 (13.1) | 46.0 (12.3) | <0.001 |
| BMI (kg/m2), mean (SD) |  |  |  |  |  |
| Men (%) | 39.0 | 34.8 | 36.0 | 58.7 | <0.001 |
| Manual job (%) | 59.5 | 41.7 | 51.5 | 53.4 | <0.001 |
| Low education (%) | 59.8 | 61.0 | 51.5 | 38.6 | <0.001 |
| Leisure time physical activity >30 mins/day | 5.3 | 3.8 | 3.4 | 2.3 | 0.50 |
| Sedentary activity >2 hrs/day | 36.4 | 55.3 | 58 | 61.7 | <0.001 |
| Active commuting >30 mins/day | 25.0 | 4.9 | 8.7 | 7.2 | <0.001 |
| Smoker (%) | 24.2 | 26.1 | 22.7 | 37.5 | <0.001 |
| Alcohol drinker (%) | 23.9 | 22.3 | 24.6 | 31.4 | 0.080 |
| Hypertension (%) | 27.3 | 36 | 28.4 | 26.9 | 0.073 |
| Central obesity (%) | 36.1 | 30.3 | 25.4 | 24.3 | 0.011 |
| Incident hyperglycemia (%) | 6.8 | 12.1 | 12.1 | 16.3 | 0.010 |

**Supplement Table 1b** Sample characteristics by quartiles of meal specific modern dietary patterns

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Quartiles of dietary patterns | | | |  |
|  | Q1 | Q2 | Q3 | Q4 | p-value |
| N | 264 | 264 | 264 | 264 |  |
| **Modern breakfast** |  |  |  |  |  |
| *Macronutrients/foods intake by eating occasion* |  |  |  |  |  |
| Energy intake (kcal/d), mean (SD) | 578.5 (248.6) | 429.3 (202.1) | 503.3 (260.1) | 595.8 (261.4) | <0.001 |
| Fat (g/d), mean (SD) | 11.0 (13.7) | 6.4 (8.2) | 11.4 (11.3) | 21.9 (17.0) | <0.001 |
| Carbohydrate (g/d), mean (SD) | 104.3 (37.3) | 81.9 (33.8) | 86.0 (42.3) | 82.3 (39.6) | <0.001 |
| Protein (g/d), mean (SD) | 15.5 (8.2) | 10.9 (5.7) | 14.2 (8.8) | 16.6 (8.0) | <0.001 |
| Rice | 104.0 (40.5) | 79.0 (30.8) | 52.5 (36.9) | 28.9 (33.2) | <0.001 |
| Wheat | 28.9 (61.7) | 25.7 (56.6) | 59.6 (73.6) | 64.1 (66.6) | <0.001 |
| *Macronutrients intake each day* |  |  |  |  |  |
| Energy intake (kcal/d), mean (SD) | 2031.3 (572.5) | 1901.3 (602.3) | 1984.1 (1001.7) | 2091.7 (893.2) | 0.042 |
| Fat (g/d), mean (SD) | 84.2 (36.9) | 74.5 (30.8) | 77.3 (36.2) | 91.2 (37.5) | <0.001 |
| Carbohydrate (g/d), mean (SD) | 363.6 (97.4) | 312.2 (76.5) | 309.5 (104.4) | 299.0 (97.0) | <0.001 |
| Protein (g/d), mean (SD) | 75.5 (21.0) | 68.0 (18.9) | 69.4 (22.4) | 75.8 (22.4) | <0.001 |
| Fat intake (% energy), mean (SD) | 29.6 (8.7) | 29.9 (8.2) | 31.0 (9.0) | 34.8 (8.9) | <0.001 |
| Age (years), mean (SD) | 49.1 (12.3) | 49.0 (13.3) | 48.5 (13.0) | 48.0 (14.0) | 0.76 |
| BMI (kg/m2), mean (SD) | 23.3 (3.3) | 22.9 (3.2) | 23.3 (3.4) | 23.7 (3.4) | 0.093 |
| Men (%) | 39.8 | 42.4 | 36.4 | 50.0 | 0.012 |
| Manual job (%) | 70.1 | 53.4 | 43.6 | 39.0 | <0.001 |
| Low education (%) | 58.3 | 58.3 | 55.7 | 38.6 | <0.001 |
| Leisure time physical activity >30 mins/day | 0 | 0.8 | 6.1 | 8.0 | <0.001 |
| Sedentary activity >2 hrs/day | 40.9 | 53.4 | 53.0 | 64.0 | <0.001 |
| Active commuting >30 mins/day | 18.2 | 8.3 | 11.0 | 8.3 | <0.001 |
| Smoker (%) | 28.4 | 26.1 | 25.8 | 30.3 | 0.62 |
| Alcohol drinker (%) | 23.5 | 26.1 | 22.3 | 30.3 | 0.16 |
| Hypertension (%) | 32.2 | 27.3 | 29.2 | 29.9 | 0.66 |
| Central obesity (%) | 34.5 | 25.8 | 26.6 | 29.3 | 0.12 |
| Incident hyperglycemia (%) | 12.1 | 10.6 | 11.0 | 13.6 | 0.70 |
| **Modern lunch** |  |  |  |  |  |
| *Macronutrients/foods intake by eating occasion* |  |  |  |  |  |
| Energy intake (kcal/d), mean (SD) | 921.4 (289.2) | 862.3 (288.9) | 874.9 (305.0) | 942.8 (290.3) | 0.005 |
| Fat (g/d), mean (SD) | 31.8 (19.6) | 29.5 (22.0) | 35.6 (21.3) | 41.1 (21.2) | <0.001 |
| Carbohydrate (g/d), mean (SD) | 131.1 (40.5) | 113.5 (40.8) | 109.3 (41.2) | 108.6 (36.1) | <0.001 |
| Protein (g/d), mean (SD) | 27.8 (10.8) | 26.0 (9.4) | 29.4 (10.2) | 34.6 (10.7) | <0.001 |
| Rice, mean (SD) | 142.4 (59.9) | 103.1 (61.0) | 109.2 (55.2) | 109.0 (52.1) | <0.001 |
| Wheat, mean (SD) | 20.1 (41.2) | 21.3 (46.6) | 29.2 (56.6) | 22.5 (44.0) | 0.13 |
| *Macronutrients intake each day* |  |  |  |  |  |
| Energy intake (kcal/d), mean (SD) | 2025.3 (610.2) | 1968.6 (1063.1) | 1941.4 (674.3) | 2072.6 (730.3) | 0.23 |
| Fat (g/d), mean (SD) | 76.5 (34.6) | 76.8 (33.2) | 82.9 (36.0) | 91.1 (38.2) | <0.001 |
| Carbohydrate (g/d), mean (SD) | 353.7 (97.5) | 319.8 (98.3) | 302.7 (96.7) | 307.8 (89.8) | <0.001 |
| Protein (g/d), mean (SD) | 70.4 (22.2) | 66.2 (19.7) | 71.8 (19.2) | 80.4 (22.1) | <0.001 |
| Fat intake (% energy), mean (SD) | 28.4 (8.8) | 30.7 (9.0) | 33.2 (8.7) | 33.1 (8.4) | <0.001 |
| Age (years), mean (SD) | 49.7 (12.4) | 48.9 (13.1) | 47.8 (13.5) | 48.3 (13.6) | 0.38 |
| BMI (kg/m2), mean (SD) | 23.3 (3.5) | 23.2 (3.0) | 23.6 (3.4) | 23.1 (3.4) | 0.35 |
| Men (%) | 41.3 | 34.0 | 40.4 | 53.0 |  |
| Manual job (%) | 60.6 | 52.2 | 43.5 | 49.6 | 0.001 |
| Low education (%) | 62.9 | 56 | 49.6 | 42.4 | <0.001 |
| Leisure time physical activity >30 mins/day | 1.1 | 2.2 | 7.3 | 4.2 | 0.009 |
| Sedentary activity >2 hrs/day | 39.8 | 59 | 52.7 | 59.8 | <0.001 |
| Active commuting >30 mins/day | 15.2 | 9.7 | 8.5 | 12.5 | 0.083 |
| Smoker (%) | 28.8 | 23.9 | 22.3 | 35.6 | 0.003 |
| Alcohol drinker (%) | 24.2 | 16.8 | 18.5 | 42.8 | <0.001 |
| Hypertension (%) | 36.7 | 23.1 | 29.2 | 29.5 | 0.008 |
| Central obesity (%) | 33.7 | 31 | 28.7 | 22.7 | 0.038 |
| Incident hyperglycemia (%) | 9.8 | 11.2 | 14.6 | 11.7 | 0.39 |
| **Modern dinner** |  |  |  |  |  |
| *Macronutrients/foods intake by eating occasion* |  |  |  |  |  |
| Energy intake (kcal/d), mean (SD) | 828.3 (303.8) | 798.1 (288.9) | 834.9 (280.6) | 945.0 (307.8) | <0.001 |
| Fat (g/d), mean (SD) | 26.5 (20.6) | 29.9 (20.5) | 32.4 (21.6) | 42.2 (22.8) | <0.001 |
| Carbohydrate (g/d), mean (SD) | 122.9 (41.1) | 107.7 (36.0) | 107.5 (34.4) | 105.2 (36.4) | <0.001 |
| Protein (g/d), mean (SD) | 24.5 (9.5) | 24.3 (9.7) | 28.3 (10.0) | 36.1 (11.4) | <0.001 |
| Rice, mean (SD) | 108.6 (67.9) | 89.1 (60.5) | 94.0 (53.1) | 100.7 (52.9) | <0.001 |
| Wheat, mean (SD) | 47.9 (83.7) | 50.6 (72.6) | 41.4 (67.2) | 26.0 (51.2) | <0.001 |
| *Macronutrients intake each day* |  |  |  |  |  |
| Energy intake (kcal/d), mean (SD) | 1955.8 (598.1) | 1967.6 (677.6) | 1912.4 (900.8) | 2172.7 (917.8) | <0.001 |
| Fat (g/d), mean (SD) | 75.0 (40.2) | 78.9 (33.8) | 79.6 (32.1) | 93.7 (34.7) | <0.001 |
| Carbohydrate (g/d), mean (SD) | 350.8 (104.1) | 319.6 (98.6) | 311.6 (93.1) | 302.2 (87.2) | <0.001 |
| Protein (g/d), mean (SD) | 67.8 (20.6) | 66.6 (20.5) | 71.2 (18.8) | 83.1 (21.9) | <0.001 |
| Fat intake (% energy), mean (SD) | 28.1 (8.9) | 31.3 (8.7) | 31.8 (8.8) | 34.2 (8.3) | <0.001 |
| Age (years), mean (SD) | 50.4 (13.0) | 49.7 (13.0) | 48.5 (13.8) | 46.0 (12.5) | <0.001 |
| BMI (kg/m2), mean (SD) | 23.2 (3.3) | 23.2 (3.5) | 23.5 (3.3) | 23.3 (3.2) | 0.77 |
| Men (%) | 35.2 | 37.1 | 37.1 | 59.1 | <0.001 |
| Manual job (%) | 64.0 | 53.4 | 43.6 | 45.1 | <0.001 |
| Low education (%) | 8.3 | 11.0 | 13.6 | 12.5 | <0.001 |
| Leisure time physical activity >30 mins/day | 0.8 | 3.0 | 4.5 | 6.4 | 0.015 |
| Sedentary activity >2 hrs/day | 39.4 | 52.7 | 56.1 | 63.3 | <0.001 |
| Active commuting >30 mins/day | 15.9 | 12.1 | 10.2 | 7.6 | <0.001 |
| Smoker (%) | 25.4 | 26.1 | 22.0 | 37.1 | <0.001 |
| Alcohol drinker (%) | 17.8 | 19.3 | 16.7 | 48.5 | <0.001 |
| Hypertension (%) | 27.3 | 30.7 | 30.3 | 30.3 | 0.81 |
| Central obesity (%) | 34.8 | 30 | 29.2 | 22.1 | 0.014 |
| Incident hyperglycemia (%) | 10.2 | 10.6 | 12.9 | 13.6 | 0.55 |