**Supplementary tables**

**Supplementary table 1 - Comparison of quintiles of energy intake from animal and vegetable protein between EPIC-Italy and Harvard Nurse Health and Professional Study**

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| --- | --- | --- | --- | --- | --- |
| **NURSES HEALTH STUDY AND HEALTH PROFESSIONAL STUDY** |  |  |  |  |  |
|  | Quintile 1 | Quintile 2 | Quintile 3 | Quintile 4 | Quintile 5 |
| ***Animal Protein*** |
| Median Intake (%) | 8.9 | 11 | 14 | 16 | 20 |
| ***Plant Protein*** |
| Median Intake (%) | 2.6 | 3.5 | 4.5 | 5.4 | 6.6 |
|  |
| **EPIC\_ITALY** |  |  |  |  |  |
| ***Animal Protein*** |
| Median Intake (%) | 6.7 | 8.6 | 10.0 | 11.4 | 13.8 |
| ***Vegetable Protein*** |
| Median Intake (%) | 3.5 | 4.4 | 5.0 | 5.7 | 7.0 |
|  |  |  |  |  |  |

|  |
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| **Supplementary table 2 – Characteristics of 2,402 Study Participants with Blood Test According to Percentage of Energy From Protein Intake§**  |
|  | **Animal protein** | **Vegetable protein** |
|  | Quintile 1 | Quintile 3 | Quintile 5 | Quintile 1 | Quintile 3 | Quintile 5 |
| *Characteristics* |  |  |  |  |  |  |
| **Age** | 52.2 (8.10) | 53.4 (7.89) | 53.6 (7.80) | 53.3 (7.87) | 52.8 (8.34) | 53.2 (7.71) |
| **Gender** |  |  |  |  |  |  |
| *Male* | 24.6 | 19.6 | 13.9 | 15.3 | 21.5 | 19.8 |
| *Female* | 17.3 | 20.2 | 23.6 | 22.7 | 19.1 | 20.1 |
| **Center** |  |  |  |  |  |  |
| *Turin* | 14.7 | 19.8 | 26.1 | 23.4 | 23.3 | 11.3 |
| *Varese* | 12.6 | 22.4 | 23.4 | 29.8 | 22.1 | 6.1 |
| *Florence* | - | - | - | - | - | - |
| *Naples* | 19.3 | 21.9 | 13.1 | 1.9 | 9.7 | 56.1 |
| *Ragusa* | 49.0 | 10.9 | 6.3 | 3.5 | 17.2 | 41.7 |
| **BMI** (Kg/m2)  | 26.5 (4.11) | 26.8 (4.54) | 27.2 (4.14) | 26.5 (4.06) | 26.4 (4.27) | 27.5 (4.31) |
| **Waist to hip ratio** | 0.88 (0.10) | 0.86 (0.09) | 0.85 (0.09) | 0.84 (0.09) | 0.86 (0.09) | 0.88 (0.09) |
| **Current smoker** (%) | 21.5 | 17.7 | 16.3 | 18.5 | 19.1 | 23.7 |
| **Physical activity** |  |  |  |  |  |  |
| Inactive (%) | 22.4 | 19.8 | 17.9 | 16.4 | 16.6 |  32.5 |
| Moderately inactive (%) | 17.7 | 17.5 | 22.7 | 22.8 | 20.6 | 12.8 |
| Moderately active (%) | 21.9 | 22.2 | 18.5 | 21.9 | 24.8 | 15.7 |
| Active (%) | 19.0 | 25.0 | 18.7 | 21.2 | 21.1 | 15.4 |
| **Education (**>8years**)** | 19.8 | 21.0 | 19.4 | 19.8 | 20.5 | 18.3 |
| **Diastolic Pressure** | 82 (10) | 84 (10) | 84(10) | 84 (10) | 83 (10) | 83.0 (10) |
| **Systolic Pressure** | 133 (20) | 136 (21) | 136 (20) | 135 (20) | 134 (20) | 137(22) |
| **Total protein** (% energy/day) | 13.9 (1.31) | 16.5 (1.01) | 20.0 (1.79) | 17.2 (2.80) | 16.8 (2.30) | 16.0 (1.91) |
| **Animal protein** (% energy/day) | 6.32 (1.16) | 9.89 (0.41) | 14.4 (1.88) | 11.8 (3.19) | 10.4 (2.43) | 7.85 (2.19) |
| **Vegetable protein** (% energy/day) | 6.17 (1.51) | 5.07 (1.16) | 4.28 (0.99) | 3.37 (0.53) | 5.03 (0.19) | 7.18 (0.75) |
| **Total fat** (% energy/day) | 29.4 (5.69) | 33.9 (4.72) | 38.5 (5.08) | 37.7 (5.61) | 34.4 (5.21) | 29.5 (4.74) |
| **Starch** (% energy/day) | 33.6 (7.59) | 27.0 (5.99) | 21.1 (5.68) | 19.0 (4.82) | 26.4 (4.06) | 36.7 (5.47) |
| **Sugar** (% energy/day) | 18.4 (5.96) | 18.1 (5.68) | 17.0 (5.12) | 21.0 (6.11) | 17.5 (4.87)  | 15.2 (4.30) |
| **Alcohol** (% energy/day) | 4.6 (6.0) | 4.5 (5.5) | 3.4 (4.7) | 5.1 (6.5) | 4.8 (5.5) | 2.6 (3.5) |
| **Fiber** (g/day) | 25.9 (8.5) | 22.1 (7.7) | 18.0 (6.0) | 17.5 (5.7) | 21.8 (7.3) | 27.0 (8.1) |
| **Total energy intake** (kcal/day) | 2422 (683) | 2306 (653) | 2017(642) | 2190 (652) | 2278 (680) | 2335 (647) |
| *Protein Sources* |  |  |  |  |  |  |
| **Red Meat** (% energy/day) | 1.4 (0.8) | 2.5 (1.2) | 3.7 (1.8) | 2.9 (1.7) | 2.6 (1.4) | 1.9 (1.1) |
| **Processed meat** (% energy/day) | 0.7 (0.6) | 1.0 (0.6) | 1.4 (1.0) | 1.2 (0.9) | 1.0 (0.7) | 0.7 (0.6) |
| **Poultry** (% energy/day) | 0.9 (0.7) | 1.3 (0.8) | 2.2 (1.3) | 1.5 (1.1) | 1.5 (1.1) | 1.2 (0.9) |
| **Fish** (% energy/day) | 0.7 (0.6) | 1.1 (0.7) | 1.6 (1.3) | 1.2 (1.0) | 1.1 (0.8) | 1.2 (0.9) |
| **Egg** (% energy/day) | 0.32 (0.25) | 0.42 (0.26) | 0.51 (0.34) |  0.47 (0.32) | 0.43 (0.28) | 0.31 (0.23) |
| **Dairy** (% energy/day) | 2.3 (1.1) | 3.5 (1.3) | 5.0 (1.9) | 4.5 (1.8) | 3.7 (1.6) | 2.6 (1.2) |
| **Tubers** (% energy/day) | 0.10 (0.09) | 0.10 (0.08) | 0.10 (0.08) | 0.09(0.07) | 0.10 (0.08) | 0.11 (0.08) |
| **Vegetables** (% energy/day) | 0.56 (0.36) | 0.61 (0.36) | 0.68 (0.31) | 0.56 (0.28) | 0.61 (0.32) | 0.71 (0.41) |
| **Legumes** (% energy/day) | 0.17 (0.36) | 0.19 (0.36) | 0.15 (0.29) | 0.08 (0.11) | 0.12 (0.21) | 0.39 (0.55) |
| **Fruits** (% energy/day) | 0.45 (0.27) | 0.40 (0.24) | 0.39 (0.21) | 0.37 (0.21) | 0.42 (0.25) | 0.44 (0.24) |
| **Pasta** (% energy/day) | 0.92 (0.59) | 0.90 (0.61) | 0.69 (0.50) | 0.54 (0.39) | 0.89 (0.51) | 1.01 (0.61) |
| **Rice** (% energy/day) | 0.13 (0.16) | 0.16 (0.18) | 0.16 (0.18) | 0.13 (0.13) | 0.18 (0.19) | 0.13 (0.17) |
| **Bread** (% energy/day) | 3.21 (1.53) | 2.00 (1.04) | 1.42 (0.87) | 0.98 (0.62) | 2.02 (0.75) | 3.77 (1.29) |
| **Pizza**(% energy) | 0.19 (0.19) | 0.17 (0.15) | 0.13 (0.12) | 0.14 (0.13) | 0.16 (0.15) | 0.21 (0.17) |
| *Biomarkers* |  |  |  |  |  |  |
| **Insulin**  | 9.77 (6.02) | 9.88 (7.95) | 9.58 (6.09) | 10.1 (6.7) | 10.2 (8.3) | 8.9 (0.6) |
| **Glycemia** | 98.6 (29.0) | 100 (31.5) | 103.7 (35.3) | 100.3 (27.4) | 102.6 (34.2) | 99.3 (32.7) |
| **HOMA** | 2.08 (1.59) | 2.22 (2.75) | 2.18 (1.96) | 2.17 (1.65) | 2.29 (2.42) | 1.92 (1.63) |
| **β-cell function** | 231 (594) | 162 (605) | 183 (361) | 227 (501) | 178 (493) | 169 (632) |
| **CRP** (mg/ml) | 1.93 (2.30) | 1.94 (2.53) | 2.06 (2.43) | 1.80 (2.23) | 2.17 (3.05) | 2.20 (2.62) |
| **Cholesterol**  | 228.4 (46.8) | 235.9 (49.4) | 241.6 (47.5) | 241.0 (45.7) | 232.6 (47.3) | 230.3 (50.4) |
| **Triglycerides** (mg/dl) | 145.4 (78.0) | 140.2 (82.1) | 139.3 (85.9) | 133.1 (77.3) | 140.1 (74.8) | 148.0 (80.1) |
| **HDL** (mg/l) | 58.0 (15.3) | 60.1 (15.4) | 61.0 (15.2) | 63.2 (15.3) | 59.1 (15.7) | 55.4 (13.9) |
| **T-cholesterol/HDL ratio** | 4.15 (1.19) | 4.12 (1.16) | 4.16 (1.17) | 4.01 (1.17) | 4.15 (1.20) | 4.34 (1.20) |
| **Triglyceride/HDL ratio** | 2.82 (1.98) | 2.65 (2.16) | 2.61 (2.37) | 2.40 (2.15) | 2.72 (2.02) | 2.95 (2.05) |
| **Remnant-Cholesterol** | 29.1 (15.6) | 28.0 (16.4) | 27.9 (17.2) | 26.6 (15.5) | 28.0 (15.0) | 29.6 (16.0) |
| **Non HDLc** | 170.3 (45.5) | 175.7 (47.3) | 180.7 (45.5) | 177.7 (44.8) | 173.4 (45.5) | 174.9 (48.3) |
| **LDLc** | 141.3 (39.2) | 147.7(42.4) | 152.8 (41.9) | 151.1 (40.3) | 145.4 (40.6) | 145.3 (42.8) |
| **Metabolic Syndrome** | 0.38 (0.48) | 0.41 (0.49) | 0.41 (0.49) | 0.36 (0.48) | 0.37 (0.48) | 0.45 (0.50) |
| *MetS components* |  |  |  |  |  |  |
| **Number of components** | 2.08 (1.29) | 2.15 (1.35) | 2.28 (1.32) | 2.02 (1.35) | 2.07 (1.33) | 2.32 (1.33) |
| **High waist**  | 0.57 (0.49) | 0.56 (0.50) | 0.66 (0.47) | 0.58 (0.49) | 0.54 (0.50) | 0.66 (0.47) |
| **High triglycerides** | 0.36 (0.48) | 0.34 (0.47) | 0.33 (0.47) | 0.30 (0.46) | 0.35 (0.48) | 0.38 (0.49) |
| **Low HDL** | 0.18 (0.39) | 0.16 (0.36) | 0.16 (0.37) | 0.11 (0.32) | 0.14 (0.35) | 0.27 (0.44) |
| **High blood pressure** | 0.61 (0.49) | 0.69 (0.46) | 0.69 (0.46) | 0.65 (0.48) | 0.65 (0.48) | 0.67 (0.47) |
| **High glycemia** | 0.35 (0.48) | 0.40 (0.49) | 0.44 (0.50) | 0.38 (0.49) | 0.39 (0.49) | 0.34 (0.47) |

§Table entries are means and standard deviation except where indicated