Supplemental Table 1. Associations between dietary mineral intake and reproductive hormone concentrations for all quintile comparisons. 1

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Quintile 1 | Quintile 2 | Quintile 3 | Quintile 4 | Quintile 5 (ref) | P-trend 2 |
| Dietary minerals | %D | 95% CI | %D | 95% CI | %D | 95% CI | %D | 95% CI |
| Calcium, Ca (mg) | 150.0 – 466.0 | 468.3 – 596.4 | 596.8 – 731.9 | 732.0 – 913.6 | 914.2 – 1,363.76 |  |
| Estradiol, pg/mL  | 7.1 | -3.7 | 19.0 | 4.0 | -5.4 | 14.4 | 2.4 | -6.1 | 11.7 | -2.2 | -9.7 | 5.8 |  | 0.12 |
| Free Estradiol, pg/mL | 6.3 | -4.1 | 17.8 | 0.4 | -8.5 | 10.0 | 2.2 | -6.2 | 11.2 | -2.8 | -10.1 | 5.1 |  | 0.21 |
| FSH, mIU/mL | -0.5 | -8.9 | 8.7 | 2.1 | -5.7 | 10.6 | -2.6 | -9.5 | 4.8 | 0.1 | -6.4 | 7.0 |  | 0.92 |
| LH, ng/mL  | -0.5 | -11.4 | 11.7 | 1.9 | -8.1 | 12.9 | -6.4 | -14.9 | 3.0 | 1.1 | -7.4 | 10.3 |  | 0.97 |
| Progesterone, 3 ng/mL | -8.8 | -30.2 | 19.1 | -24.9 | -41.1 | -4.2 | -11.9 | -29.8 | 10.6 | -14.4 | -30.8 | 5.9 |  | 0.34 |
| SHBG, nmol/L | 3.4 | -2.0 | 9.1 | 7.3 | 2.3 | 12.6 | 1.9 | -2.4 | 6.5 | 2.4 | -1.4 | 6.4 |  | 0.08 |
| Testosterone, ng/dL | -0.9 | -6.0 | 4.4 | 0.6 | -4.1 | 5.5 | 1.4 | -2.9 | 5.9 | -0.1 | -3.8 | 3.8 |  | 0.84 |
| Free testosterone, ng/dL | -1.5 | -6.9 | 4.1 | -1.6 | -6.4 | 3.4 | 1.2 | -3.3 | 5.9 | 0.0 | -4.0 | 4.1 |  | 0.48 |
| Free androgen index | -4.5 | -12.1 | 3.7 | -7.9 | -14.5 | -0.9 | 0.1 | -6.4 | 7.1 | -1.9 | -7.6 | 4.1 |  | 0.11 |
| Phosphorus, P (mg) | 296.3 – 726.1 | 726.6 – 852.9 | 853.3 – 1,000.8 | 1,001.5 – 1,169.8 | 1,171.9 – 1,843.2 |  |
| Estradiol, pg/mL  | 15.2 | -1.5 | 34.7 | 9.6 | -3.3 | 24.3 | 4.9 | -6.3 | 17.4 | 3.2 | -6.4 | 13.6 |  | **0.05** |
| Free Estradiol, pg/mL | 13.3 | -2.7 | 2.8 | 8.1 | -4.4 | 22.2 | 5.0 | -5.9 | 17.1 | 1.3 | -7.8 | 11.4 |  | 0.07 |
| FSH, mIU/mL | 0.5 | -11.8 | 14.4 | -1.2 | -11.0 | 9.6 | 1.5 | -7.5 | 11.4 | -1.8 | -9.4 | 6.5 |  | 0.91 |
| LH, ng/mL  | -8.3 | -22.6 | 8.6 | -5.7 | -17.7 | 8.0 | -7.1 | -17.7 | 4.9 | -2.4 | -12.1 | 8.4 |  | 0.33 |
| Progesterone, 3 ng/mL | -11.4 | -40.7 | 32.2 | -12.6 | -36.5 | 20.3 | -13.0 | -34.5 | 15.5 | -13.4 | -32.4 | 10.8 |  | 0.74 |
| SHBG, nmol/L | 5.6 | -3.4 | 15.6 | 5.7 | -1.7 | 13.6 | -0.3 | -6.6 | 6.4 | 2.8 | -2.7 | 8.7 |  | 0.14 |
| Testosterone, ng/dL | -2.8 | -10.0 | 4.9 | -2.1 | -8.0 | 4.1 | -2.7 | -7.9 | 2.9 | -1.6 | -6.2 | 3.2 |  | 0.59 |
| Free testosterone, ng/dL | -4.9 | -12.4 | 3.1 | -4.7 | -10.7 | 1.8 | -3.4 | -8.9 | 2.5 | -2.7 | -7.4 | 2.4 |  | 0.23 |
| Free androgen index | -9.1 | -19.5 | 2.5 | -9.4 | -17.8 | -0.1 | -4.3 | -12.3 | 4.4 | -5.0 | -11.8 | 2.4 |  | 0.09 |
| Magnesium, Mg (mg) | 65.1 – 162.9 | 163.7 – 195.2 | 195.4 – 225.0 | 225.3 – 273.2 | 273.6 – 539.3 |  |
| Estradiol, pg/mL  | 1.5 | -12.8 | 18.1 | 8.2 | -4.7 | 22.8 | -2.1 | -12.5 | 9.5 | 3.5 | -6.0 | 13.9 |  | 0.58 |
| Free Estradiol, pg/mL | 2.3 | -11.6 | 18.5 | 9.5 | -3.1 | 23.8 | -0.3 | -10.6 | 11.2 | 3.9 | -5.4 | 14.1 |  | 0.50 |
| FSH, mIU/mL | -1.5 | -13.1 | 11.8 | -2.6 | -12.3 | 8.3 | -4.1 | -12.7 | 5.3 | -2.9 | -10.4 | 5.3 |  | 0.99 |
| LH, ng/mL  | 7.2 | -9.0 | 26.2 | 8.9 | -5.1 | 24.8 | 0.2 | -11.3 | 13.2 | 8.2 | -2.6 | 20.2 |  | 0.53 |
| Progesterone, 3 ng/mL | -27.9 | -51.5 | 7.1 | -7.1 | -33.2 | 29.2 | -20.4 | -40.5 | 6.6 | -0.2 | -22.2 | 28.2 |  | 0.14 |
| SHBG, nmol/L | 2.4 | -6.4 | 12.1 | -0.4 | -7.6 | 7.3 | -1.1 | -7.4 | 5.7 | -0.9 | -6.3 | 4.8 |  | 0.55 |
| Testosterone, ng/dL | -1.3 | -8.4 | 6.4 | 1.7 | -4.4 | 8.3 | 1.7 | -3.8 | 7.4 | 0.7 | -3.9 | 5.5 |  | 0.84 |
| Free testosterone, ng/dL | -2.1 | -9.6 | 6.0 | 2.4 | -4.2 | 9.4 | 2.6 | -3.3 | 8.8 | 1.2 | -3.7 | 6.4 |  | 0.67 |
| Free androgen index | -2.8 | -13.7 | 9.5 | 3.3 | -6.4 | 14.0 | 5.0 | -3.8 | 14.7 | 1.6 | -5.6 | 9.5 |  | 0.67 |
| Iron, Fe (mg) | 3.9 – 8.7 | 8.7 – 10.3 | 10.3 – 12.1 | 12.1 – 15.6 | 15.6 – 52.4 |  |
| Estradiol, pg/mL  | -4.2 | -14.9 | 7.9 | -3.9 | -13.3 | 6.6 | -6.4 | -15.0 | 3.0 | **-9.6** | **-16.7** | **-1.9** |  | 0.97 |
| Free Estradiol, pg/mL | -2.0 | -12.6 | 9.9 | -0.1 | -9.6 | 10.4 | -3.4 | -12.0 | 6.0 | -6.8 | -13.9 | 1.0 |  | 0.75 |
| FSH, mIU/mL | 1.6 | -8.1 | 12.2 | -1.4 | -9.6 | 7.5 | -3.6 | -11.1 | 4.5 | 1.2 | -5.5 | 8.5 |  | 0.90 |
| LH, ng/mL  | 0.2 | -12.0 | 14.1 | -6.7 | -16.7 | 4.5 | -1.8 | -11.6 | 9.1 | -2.8 | -11.2 | 6.5 |  | 0.85 |
| Progesterone, 3 ng/mL | **-36.4** | **-53.4** | **-13.4** | **-23.3** | **-41.2** | **0.0** | -19.5 | -37.3 | 3.4 | **-23.0** | **-38.0** | **-4.3** |  | **0.02** |
| SHBG, nmol/L | 2.3 | -3.9 | 8.8 | 4.1 | -1.4 | 10.0 | 0.5 | -4.5 | 5.7 | -2.1 | -6.0 | 2.1 |  | 0.12 |
| Testosterone, ng/dL | 0.3 | -5.4 | 6.4 | -0.3 | -5.3 | 4.9 | 2.7 | -2.1 | 7.6 | -0.8 | -4.6 | 3.1 |  | 0.99 |
| Free testosterone, ng/dL | -0.7 | -6.7 | 5.7 | -0.4 | -5.7 | 5.2 | 2.6 | -2.5 | 8.0 | -0.1 | -4.2 | 4.2 |  | 0.67 |
| Free androgen index | 0.0 | -9.0 | 9.9 | 0.1 | -7.9 | 8.7 | 4.4 | -3.3 | 12.7 | 1.8 | -4.4 | 8.5 |  | 0.72 |
| Zinc, Zn (mg) | 2.9 – 5.7 | 5.7 – 7.0 | 7.0 – 8.4 | 8.4 – 10.7 | 10.6 – 113.2 |  |
| Estradiol, pg/mL  | 2.5 | -8.6 | 14.9 | 3.1 | -6.7 | 14.0 | -1.6 | -10.1 | 7.6 | -4.3 | -11.6 | 3.6 |  | 0.39 |
| Free Estradiol, pg/mL | 3.7 | -7.3 | 16.0 | 3.8 | -5.8 | 14.5 | 0.1 | -8.3 | 9.3 | -3.9 | -11.2 | 3.9 |  | 0.28 |
| FSH, mIU/mL | -1.1 | -10.1 | 8.8 | 1.5 | -6.6 | 10.4 | -0.3 | -7.5 | 7.5 | -1.8 | -8.2 | 5.0 |  | 0.93 |
| LH, ng/mL  | **-14.0** | **-24.1** | **-2.6** | -5.8 | -15.6 | 5.0 | -6.1 | -14.9 | 3.6 | -6.3 | -14.1 | 2.3 |  | **0.05** |
| Progesterone, 3 ng/mL | -0.2 | -26.1 | 34.7 | 0.7 | -22.2 | 30.2 | 2.4 | -18.9 | 29.3 | 1.9 | -17.4 | 25.6 |  | 0.97 |
| SHBG, nmol/L | 9.6 | 2.8 | 17.0 | 8.2 | 2.1 | 14.6 | 7.1 | 1.8 | 12.7 | 4.2 | -0.3 | 8.9 |  | **0.01** |
| Testosterone, ng/dL | -0.5 | -5.9 | 5.1 | 0.6 | -4.2 | 5.7 | 0.7 | -3.6 | 5.2 | -1.3 | -4.9 | 2.5 |  | 0.94 |
| Free testosterone, ng/dL | -2.7 | -8.3 | 3.2 | -1.1 | -6.1 | 4.3 | -0.6 | -5.1 | 4.2 | -1.8 | -5.7 | 2.2 |  | 0.48 |
| Free androgen index | -6.9 | -14.8 | 1.7 | -4.6 | -11.8 | 3.3 | -2.9 | -9.4 | 4.2 | -2.8 | -8.5 | 3.3 |  | 0.13 |
| Copper, Cu (mg) | 0.3 – 0.7 | 0.7 – 0.9 | 0.9 – 1.0 | 1.1 – 1.3 | 1.3 – 12.3 |  |
| Estradiol, pg/mL  | -5.7 | -16.9 | 6.9 | -3.8 | -13.8 | 7.4 | 0.6 | -9.0 | 11.2 | 1.2 | -7.3 | 10.4 |  | 0.20 |
| Free Estradiol, pg/mL | -1.2 | -12.6 | 11.8 | 1.0 | -9.2 | 12.3 | 5.8 | -4.1 | 16.6 | 5.0 | -3.6 | 14.4 |  | 0.51 |
| FSH, mIU/mL | 2.0 | -8.2 | 13.4 | 4.7 | -4.5 | 14.8 | -1.2 | -9.1 | 7.4 | -1.6 | -8.5 | 5.9 |  | 0.33 |
| LH, ng/mL  | 5.8 | -7.9 | 21.6 | 0.6 | -10.9 | 13.5 | 1.6 | -9.0 | 13.4 | -2.5 | -11.5 | 7.4 |  | 0.34 |
| Progesterone, 3 ng/mL | -17.4 | -40.8 | 15.3 | -2.6 | -27.0 | 30.0 | -3.8 | -26.1 | 25.2 | 0.0 | -20.5 | 25.6 |  | 0.28 |
| SHBG, nmol/L | 0.1 | -6.9 | 7.6 | -3.9 | -9.8 | 2.4 | -1.3 | -6.9 | 4.5 | -2.6 | -7.3 | 2.4 |  | 0.99 |
| Testosterone, ng/dL | -0.5 | -6.4 | 5.7 | 0.9 | -4.3 | 6.3 | 2.0 | -2.8 | 7.0 | 1.7 | -2.5 | 6.1 |  | 0.66 |
| Free testosterone, ng/dL | 0.1 | -6.2 | 6.7 | 3.6 | -2.1 | 9.6 | 3.9 | -1.3 | 9.4 | 3.0 | -1.5 | 7.7 |  | 0.89 |
| Free androgen index | 2.1 | -7.2 | 12.4 | **9.9** | **1.1** | **19.5** | **8.2** | **0.3** | **16.8** | 6.7 | -0.1 | 14.1 |  | 0.72 |
| Manganese, Mn (mg) | 0.4 – 1.8 | 1.8 – 2.3 | 2.3 – 2.8 | 2.8 – 3.5 | 3.5 – 10.6 |  |
| Estradiol, pg/mL  | 11.2 | -1.6 | 25.7 | 7.8 | -3.2 | 20.0 | 4.5 | -5.1 | 15.0 | 4.7 | -3.9 | 14.0 |  | 0.10 |
| Free Estradiol, pg/mL | 10.8 | -1.6 | 24.8 | 7.8 | -2.8 | 19.7 | 6.2 | -3.3 | 16.7 | 4.4 | -4.0 | 13.6 |  | 0.10 |
| FSH, mIU/mL | -0.9 | -10.5 | 9.6 | -3.0 | -11.3 | 6.0 | -2.1 | -9.6 | 6.1 | -2.6 | -9.4 | 4.6 |  | 0.89 |
| LH, ng/mL  | 3.6 | -9.3 | 18.4 | -0.5 | -11.5 | 11.9 | 2.5 | -7.8 | 13.8 | -1.3 | -10.2 | 8.5 |  | 0.61 |
| Progesterone, 3 ng/mL | -9.3 | -33.9 | 24.5 | -8.7 | -30.8 | 20.4 | 2.5 | -20.3 | 31.7 | -7.0 | -25.8 | 16.5 |  | 0.56 |
| SHBG, nmol/L | 1.6 | -4.6 | 8.2 | -0.9 | -6.3 | 4.7 | -2.4 | -7.0 | 2.4 | -2.1 | -6.2 | 2.2 |  | 0.42 |
| Testosterone, ng/dL | -1.7 | -7.5 | 4.5 | 1.8 | -3.5 | 7.4 | 1.1 | -3.6 | 6.0 | 0.2 | -3.9 | 4.4 |  | 0.85 |
| Free testosterone, ng/dL | -0.7 | -7.0 | 5.9 | 3.2 | -2.5 | 9.2 | 2.5 | -2.5 | 7.8 | 1.2 | -3.2 | 5.8 |  | 0.93 |
| Free androgen index | 3.7 | -5.9 | 14.3 | 6.9 | -1.8 | 16.5 | 6.7 | -1.1 | 15.1 | 4.7 | -2.1 | 11.9 |  | 0.49 |
| Selenium, Se (µg) | 33.0 – 63.4 | 63.6 – 78.8 | 79.0 – 90.2 | 90.2 – 110.7 | 110.9 – 211.5 |  |
| Estradiol, pg/mL  | -2.7 | -14.3 | 10.5 | -0.4 | -10.2 | 10.5 | -1.7 | -10.5 | 8.0 | -2.9 | -10.5 | 5.3 |  | 0.92 |
| Free Estradiol, pg/mL | -6.2 | -17.1 | 6.1 | -1.4 | -10.9 | 9.0 | -2.3 | -10.9 | 7.2 | -4.8 | -12.1 | 3.1 |  | 0.63 |
| FSH, mIU/mL | -1.8 | -11.6 | 9.1 | 1.8 | -6.6 | 11.0 | -0.2 | -7.7 | 8.0 | -0.9 | -7.4 | 6.1 |  | 0.97 |
| LH, ng/mL  | -1.9 | -14.6 | 12.7 | 0.0 | -10.8 | 12.1 | -1.1 | -10.8 | 9.8 | -1.2 | -9.8 | 8.2 |  | 0.92 |
| Progesterone, 3 ng/mL | -22.8 | -44.4 | 7.1 | -9.8 | -31.2 | 18.2 | -5.6 | -26.0 | 20.4 | -10.0 | -27.3 | 11.3 |  | 0.23 |
| SHBG, nmol/L | 6.9 | -0.7 | 15.1 | 0.8 | -4.9 | 6.8 | 0.0 | -5.2 | 5.4 | 2.7 | -1.8 | 7.5 |  | 0.32 |
| Testosterone, ng/dL | 3.0 | -3.1 | 9.4 | -1.9 | -6.5 | 3.0 | 2.3 | -2.1 | 7.0 | 2.6 | -1.2 | 6.5 |  | 0.76 |
| Free testosterone, ng/dL | -0.2 | -6.6 | 6.5 | -3.0 | -7.9 | 2.2 | 1.8 | -2.9 | 6.8 | 2.0 | -2.1 | 6.2 |  | 0.29 |
| Free androgen index | -5.4 | -14.3 | 4.4 | -4.4 | -11.6 | 3.5 | 0.5 | -6.5 | 8.0 | -0.4 | -6.4 | 5.9 |  | 0.17 |
| Sodium, Na (mg) | 931.2 – 2,059.8 | 2,065.0 – 2,477.0 | 2,477.9 – 2,852.7 | 2,853.1 – 3,405.8 | 3,421.9 – 6,553.3 |  |
| Estradiol, pg/mL  | 1.0 | -9.9 | 13.2 | -0.4 | -9.6 | 9.6 | -1.2 | -9.9 | 8.4 | 0.4 | -7.4 | 8.8 |  | 0.94 |
| Free Estradiol, pg/mL | 3.0 | -7.9 | 15.2 | 1.0 | -8.1 | 11.0 | -0.2 | -8.8 | 9.3 | 1.9 | -5.9 | 10.3 |  | 0.71 |
| FSH, mIU/mL | 1.0 | -8.2 | 11.1 | -2.3 | -9.9 | 5.9 | -0.8 | -8.2 | 7.1 | -0.9 | -7.4 | 6.1 |  | 0.98 |
| LH, ng/mL  | -0.1 | -11.7 | 13.1 | -7.4 | -16.6 | 2.8 | -2.5 | -11.9 | 7.7 | -6.2 | -14.1 | 2.5 |  | 0.82 |
| Progesterone, 3 ng/mL | 12.9 | -16.7 | 53.1 | 17.9 | -8.5 | 51.8 | 21.5 | -4.5 | 54.7 | 16.5 | -5.9 | 44.3 |  | 0.49 |
| SHBG, nmol/L | -5.9 | -11.8 | 0.5 | -3.5 | -8.7 | 2.0 | -3.5 | -8.6 | 1.8 | -2.6 | -6.9 | 2.0 |  | **0.03** |
| Testosterone, ng/dL | 2.2 | -3.2 | 8.0 | 0.7 | -3.9 | 5.4 | 1.2 | -3.3 | 5.8 | -0.2 | -4.0 | 3.7 |  | 0.45 |
| Free testosterone, ng/dL | 3.4 | -2.5 | 9.6 | 1.1 | -3.8 | 6.2 | 0.2 | -4.5 | 5.2 | -0.2 | -4.2 | 4.0 |  | 0.26 |
| Free androgen index | 7.9 | -1.1 | 17.8 | 2.6 | -4.7 | 10.6 | 1.4 | -5.6 | 9.0 | 1.3 | -4.8 | 7.7 |  | 0.12 |
| Potassium, K (mg) | 493.8 – 1,422.6 | 1,426.6 – 1,709.1 | 1,716.4 – 1,986.3 | 1,987.2 – 2,375.1 | 2,380.6 – 4,242.5 |  |
| Estradiol, pg/mL  | 3.7 | -9.8 | 19.2 | -2.4 | -12.9 | 9.4 | -2.8 | -12.4 | 7.9 | -6.1 | -14.1 | 2.6 |  | 0.40 |
| Free Estradiol, pg/mL | 5.3 | -7.9 | 20.5 | 0.9 | -9.7 | 12.7 | 0.1 | -9.6 | 10.8 | -4.7 | -12.7 | 3.9 |  | 0.24 |
| FSH, mIU/mL | -6.9 | -17.0 | 4.4 | -3.7 | -12.4 | 5.8 | -3.4 | -11.4 | 5.3 | -5.1 | -12.0 | 2.2 |  | 0.44 |
| LH, ng/mL  | -9.4 | -22.1 | 5.4 | -6.7 | -17.6 | 5.6 | -2.7 | -13.1 | 9.0 | -5.5 | -14.3 | 4.2 |  | 0.25 |
| Progesterone, 3 ng/mL | -4.8 | -33.3 | 36.0 | 6.0 | -20.9 | 42.0 | -9.1 | -30.5 | 19.0 | 1.7 | -19.3 | 28.1 |  | 0.99 |
| SHBG, nmol/L | 1.6 | -6.4 | 10.2 | 0.0 | -6.4 | 6.8 | -4.6 | -10.1 | 1.3 | -2.8 | -7.7 | 2.2 |  | 0.34 |
| Testosterone, ng/dL | 1.4 | -5.3 | 8.6 | 2.6 | -2.9 | 8.4 | 1.8 | -3.2 | 7.0 | -0.5 | -4.7 | 3.8 |  | 0.38 |
| Free testosterone, ng/dL | 1.5 | -5.7 | 9.1 | 3.6 | -2.3 | 9.9 | 3.8 | -1.6 | 9.5 | 1.6 | -2.9 | 6.4 |  | 0.59 |
| Free androgen index | -0.3 | -10.6 | 11.2 | 4.9 | -3.9 | 14.6 | 7.1 | -1.2 | 16.0 | 4.8 | -2.1 | 12.2 |  | 0.84 |

1 Models were adjusted for total energy intake, age, body mass index, race, physical activity, Mediterranean diet score, fiber, protein, and other hormones.

2 P-trend was calculated with median intake of minerals in each quintile as a continuous variable.

3 Limited to measurements of progesterone during the luteal phase.

Note: Statistically significant estimates and intervals are in bold.

CI, confidence interval; FSH, follicle stimulating hormone; LH, luteinizing hormone; %D, percent difference in hormone concentrations; SHBG, sex hormone-binding globulin.

Supplemental Table 2. Dietary mineral intake by quintiles and risk of sporadic anovulation.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Minerals | Quintile | Range | Ovulatory n | Anovulatoryn (%) | RR | 95% CI | P-trend |
| Calcium, Ca  | 1 | 150.0 – 466.0 | 93 | 9 (9) | 1.2 | 0.4 | 3.4 | 0.54 |
| (mg) | 2 | 468.3 – 596.4 | 92 | 10 (10) | 1.2 | 0.4 | 3.2 |  |
|  | 3 | 596.8 – 731.9 | 92 | 9 (9) | 1.4 | 0.6 | 3.1 |  |
|  | 4 | 732.0 – 913.6 | 96 | 6 (6) | 0.7 | 0.2 | 1.7 |  |
|  | 5 | 914.2 – 1963.7 | 94 | 8 (8) | 1.0 (reference) |  |
| Phosphorus, P  | 1 | 296.3 – 726.1 | 93 | 9 (9) | 1.2 | 0.3 | 5.3 | 0.99 |
| (mg) | 2 | 726.6 – 852.9 | 94 | 8 (8) | 1.1 | 0.3 | 3.9 |  |
|  | 3 | 853.3 – 1000.8 | 95 | 6 (6) | 0.7 | 0.2 | 2.6 |  |
|  | 4 | 1001.5 – 1169.8 | 93 | 9 (9) | 1.3 | 0.5 | 3.8 |  |
|  | 5 | 1171.9 – 1843.2 | 92 | 10 (10) | 1.0 (reference) |  |
| Magnesium, Mg  | 1 | 65.1 – 162.9 | 91 | 11 (11) | 1.4 | 0.4 | 4.2 | 0.66 |
| (mg) | 2 | 163.7 – 195.2 | 97 | 5 (5) | 0.6 | 0.2 | 2.1 |  |
|  | 3 | 195.4 – 225.0 | 93 | 8 (8) | 0.9 | 0.3 | 2.7 |  |
|  | 4 | 225.3 – 273.2 | 97 | 5 (5) | 0.6 | 0.2 | 1.9 |  |
|  | 5 | 273.6 – 539.3 | 89 | 13 (13) | 1.0 (reference) |  |
| Iron , Fe | 1 | 3.9 – 8.7 | 91 | 11 (11) | 1.9 | 0.7 | 5.8 | 0.42 |
| (mg) | 2 | 8.7 – 10.3 | 96 | 6 (6) | 1.2 | 0.3 | 4.2 |  |
|  | 3 | 10.3 – 12.1 | 95 | 6 (6) | 0.9 | 0.3 | 2.9 |  |
|  | 4 | 12.1 – 15.6 | 92 | 10 (10) | 1.4 | 0.5 | 3.6 |  |
|  | 5 | 15.6 – 52.4 | 93 | 9 (9) | 1.0 (reference) |  |
| Zinc, Zn  | 1 | 2.9 – 5.7 | 92 | 10 (10) | 1.3 | 0.5 | 3.8 | 0.79 |
| (mg) | 2 | 5.7 – 7.0 | 94 | 8 (8) | 0.9 | 0.3 | 2.9 |  |
|  | 3 | 7.0 – 8.4 | 95 | 6 (6) | 1.1 | 0.4 | 3.2 |  |
|  | 4 | 8.4 – 10.7 | 93 | 9 (9) | 1.1 | 0.5 | 2.5 |  |
|  | 5 | 10.8 – 113.2 | 93 | 9 (9) | 1.0 (reference) |  |
| Copper, Cu | 1 | 0.29 – 0.75 | 92 | 10 (10) | 1.0 | 0.3 | 2.9 | 0.75 |
| (mg) | 2 | 0.75 – 0.89 | 96 | 6 (6) | 0.6 | 0.2 | 2.6 |  |
|  | 3 | 0.90 – 1.05 | 95 | 6 (6) | 0.7 | 0.2 | 2.2 |  |
|  | 4 | 1.05 – 1.28 | 96 | 6 (6) | 0.6 | 0.2 | 1.6 |  |
|  | 5 | 1.29 – 12.29 | 88 | 14 (14) | 1.0 (reference) |  |
| Manganese, Mn  | 1 | 0.45 – 1.80 | 90 | 12 (12) | 1.7 | 0.6 | 5.1 | 0.60 |
| (mg) | 2 | 1.81 – 2.25 | 98 | 4 (4) | 0.6 | 0.2 | 2.3 |  |
|   | 3 | 2.25 – 2.83 | 94 | 7 (7) | 1.0 | 0.3 | 3.0 |  |
|  | 4 | 2.83 – 3.48 | 95 | 7 (7) | 0.9 | 0.3 | 2.6 |  |
|  | 5 | 3.49 – 10.59 | 90 | 12 (12) | 1.0 (reference) |  |
| Selenium, Se  | 1 | 33.0 – 63.4 | 88 | 14 (14) | 2.0 | 0.7 | 6.3 | 0.28 |
| (µg) | 2 | 63.6 – 78.8 | 96 | 6 (6) | 0.8 | 0.3 | 2.5 |  |
|  | 3 | 79.0 – 90.2 | 93 | 8 (8) | 0.9 | 0.4 | 2.4 |  |
|  | 4 | 90.2 – 110.7 | 97 | 5 (5) | 0.5 | 0.2 | 1.6 |  |
|  | 5 | 110.7 – 211.5 | 93 | 9 (9) | 1.0 (reference) |  |
| Sodium, Na  | 1 | 931.2 – 2059.8 | 90 | 12 (12) | 2.8 | 0.8 | 10.1 | 0.18 |
| (mg) | 2 | 2065.0 – 2477.0 | 96 | 6 (6) | 1.1 | 0.3 | 3.8 |  |
|  | 3 | 2477.9 – 2852.7 | 91 | 10 (10) | 2.0 | 0.7 | 5.5 |  |
|  | 4 | 2853.1 – 3405.8 | 95 | 7 (7) | 0.9 | 0.3 | 2.7 |  |
|  | 5 | 3421.9 – 6553.3 | 95 | 7 (7) | 1.0 (reference) |  |
| Potassium, K | 1 | 493.8 – 1422.6 | 92 | 10 (10) | 1.2 | 0.4 | 3.6 | 0.28 |
| (mg) | 2 | 1426.6 – 1709.1 | 101 | 1 (1) | 0.1 | 0.0 | 0.9 |  |
|  | 3 | 1716.4 – 1986.3 | 92 | 9 (9) | 1.1 | 0.4 | 3.3 |  |
|  | 4 | 1987.2 – 2375.1 | 88 | 14 (14) | 1.9 | 0.8 | 4.8 |  |
|  | 5 | 2380.6 – 4242.5 | 94 | 8 (8) | 1.0 (reference) |  |

Note: All models were adjusted for age, body mass index, race, physical activity, Mediterranean diet score, and intakes of energy, fiber, and protein. P-trend was calculated with median intake of minerals in each quintile as a continuous variable. Statistically significant estimates and intervals are in bold.

CI, 95% confidence interval; RR, risk ratio.