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| **Supplementary Table 1.** Linear regression estimates of the association between baseline cystatin C (2012), energy adjusted AHEI-2010, and race/ethnicity; Health and Retirement Study (2012) and Health Care and Nutrition Study (2013) |
|  | Baseline direct effect model | Baseline interaction model, Non-Hispanic/Latino White reference |
| *Primary Measures* | *b* | 95% CI  | *b* | 95% CI |
| Energy-adjusted AHEI-2010 (DIV10) | -0.03 | (-0.05, | -0.01) | -0.03 | (-0.05, | -0.01) |
| Race/ethnicity |  |  |  |  |  |  |
| Non-Hispanic/Latino White (ref) | -0.03 | (-0.14, | 0.08) | -0.04 | (-0.15, | 0.06) |
| Non-Hispanic/Latino Black | 0.14 | (-0.10, | 0.39) | 0.15 | (-0.10, | 0.39) |
| Hispanic/Latino |  |  |  |  |  |  |
| *Interaction Terms* |  |  |  |  |  |  |
| Energy-adjusted AHEI-2010\* Non-Hispanic/Latino Black |  |  |  | -0.04 | (-0.14, | 0.06) |
| Energy-adjusted AHEI-2010\* Hispanic/Latino |  |  |  | 0.01 | (-0.06, | 0.09) |
| *Covariates* |  |  |  |  |  |  |
| Age  | 0.02 | (0.01, | 0.02) | 0.02 | (0.01, | 0.02) |
| Female | -0.02 | (-0.07, | 0.04) | -0.02 | (-0.07, | 0.03) |
| Married/partnered  | -0.01 | (-0.08, | 0.06) | -0.01 | (-0.08, | 0.06) |
| Retired  | 0.03 | (-0.02, | 0.08) | 0.03 | (-0.02, | 0.08) |
| Spanish interview | -0.21 | (-0.47, | 0.05) | -0.22 | (-0.47, | 0.03) |
| Native born | 0.11 | (0.03, | 0.20) | 0.12 | (0.04, | 0.20) |
| Education |  |  |  |  |  |  |
| < HS degree | 0.10 | (0.00, | 0.20) | 0.1 | (0.00, | 0.20) |
| HS degree (reference) |  |  |  |  |  |  |
| > HS degree | -0.02 | (-0.08, | 0.03) | -0.02 | (-0.08, | 0.04) |
| Household assets, log | -0.01 | (-0.01, | 0.00) | -0.01 | (-0.01, | 0.00) |
| Household income, log | -0.02 | (-0.06, | 0.01) | -0.02 | (-0.06, | 0.01) |
| Food insecure | -0.06 | (-0.17, | 0.04) | -0.06 | (-0.17, | 0.04) |
| Body Mass Index |  |  |  |  |  |  |
| Underweight  | 0.04 | (-0.26, | 0.34) | 0.04 | (-0.26, | 0.34) |
| Normal (reference) |  |  |  |  |  |  |
| Overweight | -0.01 | (-0.08, | 0.07) | -0.01 | (-0.08, | 0.07) |
| Obese | 0.07 | (-0.01, | 0.15) | 0.07 | (-0.01, | 0.15) |
| Vigorous Physical Activity |  |  |  |  |  |  |
| None (reference) |  |  |  |  |  |  |
| Moderate | -0.04 | (-0.10, | 0.03) | -0.04 | (-0.10, | 0.03) |
| Regular | -0.05 | (-0.11, | 0.01) | -0.06 | (-0.11, | 0.00) |
| Current smoker | 0.05 | (-0.05, | 0.15) | 0.05 | (-0.05, | 0.16) |
| Sum chronic conditions  | 0.01 | (-0.01, | 0.04) | 0.01 | (-0.01, | 0.04) |
| Diabetic kidney problems | 0.57 | (0.19, | 0.95) | 0.58 | (0.20, | 0.96) |
| Blood Pressure |  |  |  |  |  |  |
| Normal (reference) |  |  |  |  |  |  |
| Elevated | -0.08 | (-0.17, | 0.01) | -0.08 | (-0.17, | 0.00) |
| Stage 1 hypertensive | -0.08 | (-0.16, | 0.01) | -0.08 | (-0.16, | 0.01) |
| Stage 2 hypertensive | -0.13 | (-0.21, | -0.05) | -0.13 | (-0.21, | -0.05) |
| Hypertensive crisis | -0.03 | (-0.23, | 0.17) | -0.03 | (-0.23, | 0.18) |
| Hypotensive | -0.02 | (-0.21, | 0.17) | -0.02 | (-0.21, | 0.17) |
| HbA1c |  |  |  |  |  |  |
| Normal (reference) |  |  |  |  |  |  |
| Pre-diabetic | 0.05 | (-0.01, | 0.11) | 0.05 | (-0.01, | 0.11) |
| Diabetic | 0.12 | (0.02, | 0.22) | 0.12 | (0.02, | 0.22) |
| Cholesterol |  |  |  |  |  |  |
| Desirable (reference) |  |  |  |  |  |  |
| Borderline high | -0.01 | (-0.06, | 0.05) | -0.01 | (-0.06, | 0.05) |
| High | 0.10 | (0.03, | 0.18) | 0.1 | (0.03, | 0.18) |
| C-reactive protein (log) | 0.09 | (0.05, | 0.13) | 0.09 | (0.05, | 0.13) |
| Energy intake (Kcal/100) | 0.00 | (0.00, | 0.01) | 0 | (0.00, | 0.01) |
| R squared | 0.25 | 0.26 |
| Energy-adjusted AHEI-2010 (DIV 10): Energy-adjusted Alternative Healthy Eating Index-2010, divided by 10.HS: high school.*b*: regression estimate; 95% CI: 95% confidence interval.Estimates adjusted for complex sample design. |

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| **Supplementary Table 2.** AHEI-2010 components, energy intake, macronutrient density, and select nutrient intake by race/ethnicity, Health Care and Nutrition Study (2013) |
| *AHEI-2010 Scored Component‡* | Total Sample | Non-Hispanic/Latino White | Non-Hispanic/Latino Black | Hispanic/Latino |   |   |
| N | Mean | SD | N | Mean | SD | N | Mean | SD | N | Mean  | SD | F | *p* |
| Vegetables, servings/d | 958 | 5.0 | 2.6 | 789 | 4.9 | a | 2.5 | 108 | 4.4 | a | 2.6 | 61 | 6.7 |  | 2.9 | 12.3 | <0.001 |
| Fruit, servings/d | 958 | 3.9 | 2.4 | 789 | 3.9 |  | 2.4 | 108 | 3.6 |  | 2.3 | 61 | 4.4 |  | 2.8 | 1.5 | 0.233 |
| Whole grain, g/d | 958 | 3.5 | 2.6 | 789 | 3.4 | a | 2.4 | 108 | 3.5 | a | 2.6 | 61 | 5.7 |  | 3.4 | 16.9 | <0.001 |
| Sugar-sweetened beverages, servings/d | 958 | 4.4 | 38 | 789 | 4.6 | a | 3.8 | 108 | 2.5 | b | 3.3 | 61 | 3.8 | a,b, | 3.8 | 10.8 | <0.001 |
| Nuts and legumes, servings/d | 958 | 6.4 | 3.2 | 789 | 6.5 | a | 3.2 | 108 | 5.0 | b | 3.2 | 61 | 5.9 | a,b | 3.1 | 7.7 | <0.001 |
| Red/processed meats, servings/d | 958 | 5.0 | 2.7 | 789 | 5.0 |  | 2.7 | 108 | 4.8 |  | 3.1 | 61 | 5.9 |  | 2.3 | 2.4 | 0.089 |
| Trans fat, % of energy | 958 | 8.5 | 0.8 | 789 | 8.5 |  | 0.8 | 108 | 8.5 |  | 0.8 | 61 | 8.7 |  | 0.8 | 1.9 | 0.146 |
| Long-chain (n-3) fats (EPA + DHA), mg/d | 958 | 4.2 | 2.9 | 789 | 4.1 |  | 2.9 | 108 | 5.0 |  | 3.0 | 61 | 4.2 |  | 3.2 | 2.7 | 0.065 |
| PUFA, % of energy | 958 | 6.2 | 2.1 | 789 | 6.2 |  | 2.1 | 108 | 5.8 |  | 1.9 | 61 | 5.8 |  | 1.8 | 1.6 | 0.206 |
| Alcohol, drinks/d | 958 | 5.6 | 3.1 | 789 | 5.7 | a,b | 3.1 | 108 | 4.9 | a,c | 2.8 | 61 | 4.9 | b,c | 2.7 | 3.2 | 0.043 |
| Sodium, mg/d | 958 | 5.4 | 2.9 | 789 | 5.4 | a,b | 2.8 | 108 | 6.3 | a | 3.2 | 61 | 4.6 | b | 3.1 | 4.9 | 0.007 |
| *Macronutrient Density* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| % Carbohydrate | 958 | 52.1 | 8.5 | 789 | 51.7 |  | 8.3 | 108 | 55.0 | a | 9.0 | 61 | 55.4 | a | 7.8 | 7.9 | <0.001 |
| % Protein | 958 | 16.6 | 3.2 | 789 | 16.5 |  | 3.2 | 108 | 17.0 |  | 3.4 | 61 | 17.1 |  | 3.1 | 1.17 | 0.309 |
| % Fat | 958 | 35.1 | 6.6 | 789 | 35.3 | a | 6.5 | 108 | 33.3 | a,b | 7.1 | 61 | 33.2 | b | 6.4 | 4.72 | 0.009 |
| *Nutrient Intake* |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Protein, gm | 958 | 68.8 | 27.3 | 789 | 68.5 |  | 26.2 | 108 | 67.6 |  | 32.8 | 61 | 75.4 |  | 29.8 | 1.5 | 0.230 |
| Animal protein, gm | 958 | 43.8 | 20.3 | 789 | 43.6 |  | 19.3 | 108 | 45.6 |  | 25.9 | 61 | 45.2 |  | 20.7 | 0.4 | 0.663 |
| Vegetable protein, gm | 958 | 24.9 | 12.1 | 789 | 24.9 |  | 12.3 | 108 | 22.1 | a | 10.1 | 61 | 30.2 | a | 13.1 | 6.3 | 0.002 |
| Zinc, mg | 958 | 10.8 | 4.3 | 789 | 10.9 |  | 4.2 | 108 | 9.9 |  | 4.9 | 61 | 11.4 |  | 4.8 | 2.1 | 0.127 |
| Riboflavin, mg | 958 | 2.0 | 1.2 | 789 | 2.0 |  | 1.2 | 108 | 1.8 |  | 0.9 | 61 | 2.1 |  | 1.0 | 1.1 | 0.349 |
| Vitamin B6, (pyridoxine), mg | 958 | 1.8 | 0.8 | 789 | 1.8 |  | 0.7 | 108 | 1.7 | a | 1.0 | 61 | 2.1 | a | 0.9 | 4.0 | 0.019 |
| Vitamin B12, mcg | 958 | 6.2 | 3.5 | 789 | 6.1 | a,b | 3.2 | 108 | 7.1 | a,c | 4.6 | 61 | 6.4 | b,c | 3.8 | 3.1 | 0.044 |
| Food folate, mcg | 958 | 262.2 | 119.9 | 789 | 259.6 | a | 114.6 | 108 | 239.2 | a | 120.3 | 61 | 346.0 |  | 167.9 | 12.5 | <.001 |
| Folic acid, mcg | 958 | 147.2 | 103.9 | 789 | 147.8 |  | 98.0 | 108 | 131.7 |  | 135.6 | 61 | 159.2 |  | 114.1 | 1.2 | 0.300 |
| Dietary folate equivalents, mcg | 958 | 512.4 | 234.9 | 789 | 510.9 | a | 219.7 | 108 | 463.1 | a | 294.9 | 61 | 616.7 |  | 290.4 | 6.4 | 0.002 |
| Lutein and zeaxanthin, mcg | 958 | 2408.5 | 2182.2 | 789 | 2351.9 | a | 2130.1 | 108 | 2549.3 |  | 2408.6 | 61 | 3275.3 | a | 2377.6 | 4.0 | 0.019 |
| Total trans fat, g | 958 | 1.7 | 0.8 | 789 | 1.7 |  | 0.8 | 108 | 1.6 |  | 1.0 | 61 | 1.6 |  | 0.7 | 0.6 | 0.563 |
| Total omega 3, g | 958 | 1.5 | 0.9 | 789 | 1.5 |  | 0.9 | 108 | 1.4 |  | 0.9 | 61 | 1.6 |  | 0.9 | 0.7 | 0.509 |
| Total omega 6, g | 958 | 11.8 | 6.0 | 789 | 11.7 |  | 6.0 | 108 | 10.9 |  | 6.4 | 61 | 11.7 |  | 5.3 | 0.8 | 0.447 |
| Methionine, gm | 958 | 1.5 | 0.6 | 789 | 1.5 |  | 0.6 | 108 | 1.5 |  | 0.8 | 61 | 1.6 |  | 0.7 | 1.3 | 0.265 |
| Free choline, choline-contributing metabolite, mg | 958 | 74.0 | 30.2 | 789 | 74.0 | a | 29.1 | 108 | 64.0 |  | 29.9 | 61 | 88.5 | a | 41.9 | 9.0 | <0.001 |
| Choline from phosphocholine, mg | 958 | 12.9 | 6.5 | 789 | 12.6 | a,b | 6.0 | 108 | 12.1 | a,c | 6.6 | 61 | 18.4 | b,c | 10.8 | 16.5 | <0.001 |
| Choline from phosphatidylcholine, mg | 958 | 157.7 | 75.7 | 789 | 157.2 |  | 73.7 | 108 | 157.6 |  | 88.2 | 61 | 168.7 |  | 76.1 | 0.5 | 0.608 |
| Total Choline (no betaine), mg | 958 | 309.6 | 123.3 | 789 | 308.8 |  | 118.6 | 108 | 295.5 |  | 142.7 | 61 | 345.4 |  | 146.4 | 2.4 | 0.093 |
| Betaine, choline derivative, mg | 958 | 83.2 | 42.3 | 789 | 83.9 |  | 42.0 | 108 | 78.6 |  | 46.1 | 61 | 77.5 |  | 38.2 | 0.9 | 0.398 |
| AHEI-2010: Alternative Healthy Eating Index-2010; SD: standard deviation. a,b,c Matching superscript letters denote non-significant pairwise comparison.*‡* AHEI-2010 Scored Component (0 =worst, 10 = best). Scoring criteria described elsewhere.30+ significantly greater observed versus expected count, - significantly fewer observed versus expected count in cell.Overall differences in continuous measures were compared using ANOVA, with least squares mean differences used for bivariate follow-up. The significance level for each follow-up test was adjusted using the Bonferroni correction.Means and statistical tests account for complex sample design. |

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| **Supplementary Table 3.** Select biomarkers related to kidney function and diabetes by race/ethnicity, Health and Retirement Study Venous Blood Study (2016) |
|   | Total Sample | Non-Hispanic/Latino White | Non-Hispanic/Latino Black | Hispanic/Latino |   |   |
|  | N | Mean | SD | N | Mean | SD | N | Mean | SD | N | Mean  | SD | F | *p* |
| Creatinine, mg/dL | 733 | 1.0 | 0.4 | 614 | 1.0 | a,b | 0.3 | 78 | 1.2 | a,c | 0.8 | 41 | 1.0 | b,c | 0.4 | 10.47 | <0.001 |
| Blood protein, g/dL | 733 | 6.8 | 0.4 | 614 | 6.8 |  | 0.4 | 78 | 7.0 | a | 0.5 | 41 | 7.0 | a | 0.4 | 11.71 | <0.001 |
| Albumin, g/dL | 733 | 3.9 | 0.3 | 614 | 3.9 | a | 0.3 | 78 | 3.8 | b | 0.4 | 41 | 3.9 | a,b | 0.2 | 6.66 | 0.001 |
| Alanine aminotransferase, u/L | 732 | 18.7 | 11.0 | 613 | 18.9 |  | 8.7 | 78 | 17.1 |  | 22.6 | 41 | 18.2 |  | 10.2 | 0.76 | 0.466 |
| Aspartate aminotransferase, u/L | 729 | 21.8 | 9.2 | 610 | 21.8 |  | 7.6 | 78 | 22.0 |  | 17.5 | 41 | 21.1 |  | 8.1 | 0.12 | 0.891 |
| Bilirubin (total), mg/dL | 733 | 0.5 | 0.3 | 614 | 0.5 |  | 0.3 | 78 | 0.3 |  | 0.2 | 41 | 0.4 |  | 0.2 | 9.13 | <0.001 |
| Blood urea nitrogen - mg/dL | 733 | 19.7 | 8.0 | 614 | 19.7 |  | 7.9 | 78 | 19.7 |  | 9.5 | 41 | 18.6 |  | 7.8 | 0.29 | 0.745 |
| LDL-C (calculated), mg/dL | 729 | 95.7 | 34.2 | 611 | 95.7 |  | 34.4 | 78 | 101.3 |  | 35.6 | 40 | 87.7 |  | 26.4 | 1.46 | 0.232 |
| Triglycerides, mg/dL | 733 | 132.6 | 66.3 | 614 | 131.9 |  | 65.0 | 78 | 124.8 |  | 59.0 | 41 | 162.0 |  | 85.2 | 3.31 | 0.037 |
| SD: standard deviation; LDL-C: low density lipoprotein cholesterol.a,b,c Matching superscript letters denote non-significant pairwise comparison.+ significantly greater observed versus expected count, - significantly fewer observed versus expected count in cell.Means and statistical tests account for complex sample design. |



**Supplementary Figure 1.** Participant Selection Flowchart

Note: Dashed lines represent sub-sample used for secondary analyses.