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| **Table S1. Diagnostic criteria of lifestyle factors from their questionnaire.** | |
| Smoking |  |
|  | never: smoked less than 100 cigarettes in life |
|  | former: smoked at least 100 cigarettes in life and not smoke cigarettes now |
|  | now: smoked at least 100 cigarettes in life and still smoke cigarettes now |
| Alcohol |  |
|  | no: drunk less than 12 alcohol drinks/1 year |
|  | yes: had at least 12 alcohol drinks/1 year |
| Physical activity | |
|  | No: no moderate or vigorous activities. |
|  | Moderate: do any moderate-intensity sports, fitness, or recreational activities that cause a small increase in breathing or heart rate such as brisk walking, bicycling, swimming, or golf for at least 10 minutes continuously. |
|  | Vigorous: do any vigorous-intensity sports, fitness, or recreational activities that cause large increases in breathing or heart rate like running or basketball for at least 10 minutes continuously. |

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| **Table S2. Univariate analysis of the association between all factors and all outcomes** | | | | | | |
|  | Appendicular relative lean mass (g/kg) | Trunk relative lean mass (g/kg) | Total relative lean mass (g/kg) | Total percent fat (kg/kg) | Trunk percent fat (kg/kg) | BMI (kg/m2) |
| Age (year) | -0.747  (-1.099, -0.396)  <0.001 | -0.008  (-0.275, 0.260)  0.956 | -0.749  (-1.355, -0.144)  0.018 | 0.080  (0.018, 0.142)  0.015 | 0.098  (0.031, 0.165)  0.005 | -0.035  (-0.090, 0.020)  0.212 |
| Sex |  |  |  |  |  |  |
| Men | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. |
| Women | -67.929  (-70.456, -65.402)  <0.001 | -46.442  (-48.756, -44.129)  <0.001 | -114.950  (-119.503, -110.396)  <0.001 | 11.583  (11.109, 12.057)  <0.001 | 8.570  (7.983, 9.157)  <0.001 | 0.266  (-0.237, 0.769)  0.305 |
| Race |  |  |  |  |  |  |
| Mexican American | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. |
| Other Hispanic | 6.071  (-2.198, 14.341)  0.156 | -2.327  (-8.785, 4.130)  0.483 | 4.492  (-9.782, 18.766)  0.540 | -0.600  (-2.040, 0.839)  0.417 | -1.104  (-2.456, 0.248)  0.115 | -1.404  (-2.221, -0.587)  0.001 |
| Non-Hispanic White | 7.128  (1.192, 13.065)  0.022 | 1.941  (-2.762, 6.643)  0.422 | 7.759  (-2.677, 18.196)  0.151 | -0.938  (-2.001, 0.126)  0.089 | -1.998  (-2.978, -1.018)  <0.001 | -1.672  (-2.436, -0.908)  <0.001 |
| Non-Hispanic Black | 23.117  (16.798, 29.435)  <0.001 | -15.115  (-19.909, -10.321)  <0.001 | 7.095  (-3.619, 17.809)  0.120 | -0.939  (-2.037, 0.158)  0.099 | -1.884  (-2.844, -0.924)  <0.001 | 0.595  (-0.267, 1.457)  0.181 |
| Other Race | 13.329  (5.897, 20.760)  <0.001 | 1.341  (-4.142, 6.825)  0.633 | 17.901  (5.202, 30.601)  0.008 | -2.042  (-3.335, -0.748)  0.003 | -2.485  (-3.623, -1.347)  <0.001 | -3.155  (-4.185, -2.125)  <0.001 |
| Socio-economic status |  |  |  |  |  |  |
| Low | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. |
| Middle | 7.323  (2.979, 11.668)  0.002 | -0.358  (-3.914, 3.198)  0.844 | 6.247  (-1.415, 13.909)  0.115 | -0.650  (-1.443, 0.143)  0.113 | -0.681  (-1.464, 0.103)  0.094 | -0.061  (-0.655, 0.534)  0.843 |
| High | 9.096  (4.400, 13.792)  <0.001 | -0.971  (-4.982, 3.040)  0.637 | 7.796  (-0.405, 15.997)  0.067 | -0.840  (-1.685, 0.005)  0.056 | -0.968  (-1.831, -0.105)  0.032 | -0.943  (-1.678, -0.208)  0.015 |
| Alcohol |  |  |  |  |  |  |
| No | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. |
| Yes | 17.820  (13.489, 22.151)  <0.001 | 14.969  (11.808, 18.130)  <0.001 | 32.836  (25.603, 40.069)  <0.001 | -3.319  (-4.055, -2.582)  <0.001 | -2.757  (-3.569, -1.945)  <0.001 | -0.918  (-1.605, -0.231)  0.011 |
| Smoking |  |  |  |  |  |  |
| Never | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. |
| Former | -0.519  (-5.373, 4.334)  0.835 | 4.851  (1.489, 8.212)  0.006 | 3.141  (-4.804, 11.085)  0.442 | -0.246  (-1.063, 0.571)  0.557 | 0.278  (-0.529, 1.085)  0.502 | 0.715  (0.073, 1.358)  0.033 |
| Now | 4.268  (-2.213, 10.749)  0.202 | 14.582  (9.918, 19.246)  <0.001 | 19.976  (9.064, 30.887)  <0.001 | -2.067  (-3.196, -0.937)  <0.001 | -2.317  (-3.413, -1.221)  <0.001 | -1.492  (-2.287, -0.696)  <0.001 |
| Physical activity |  |  |  |  |  |  |
| No | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. |
| Moderate | 1.397  (-3.700, 6.494)  0.593 | 0.145  (-4.034, 4.324)  0.946 | 2.397  (-6.626, 11.420)  0.605 | -0.276  (-1.196, 0.645)  0.559 | -0.499  (-1.348, 0.350)  0.254 | -1.280  (-1.890, -0.671)  <0.001 |
| Vigorous | 26.046  (20.798, 31.295)  <0.001 | 11.254  (7.312, 15.197)  <0.001 | 39.281  (30.252, 48.310)  <0.001 | -4.100  (-5.019, -3.181)  <0.001 | -4.513  (-5.389, -3.637)  <0.001 | --2.449  (-3.118, -1.780)  <0.001 |
| Sedentary activity (min/day) | -0.003  (-0.007, -0.000)  0.027 | -0.003  (-0.005, -0.000)  0.026 | -0.006  (-0.012, -0.001)  0.017 | 0.001  (0.000, 0.001)  0.021 | 0.001  (-0.000, 0.001)  0.059 | 0.000  (-0.000, 0.001)  0.343 |
| Protein (g/day) | 0.362  (0.328, 0.396)  <0.001 | 0.245  (0.210, 0.279)  <0.001 | 0.604  (0.540, 0.668)  <0.001 | -0.061  (-0.067, -0.054)  <0.001 | -0.049  (-0.055, -0.042)  <0.001 | 0.006  (0.000, 0.013)  0.043 |
| Dietary fiber (g/day) | 0.789  (0.645, 0.932)  <0.001 | 0.561  (0.412, 0.710)  <0.001 | 1.378  (1.099, 1.657)  <0.001 | -0.138  (-0.166, -0.109)  <0.001 | -0.121  (-0.150, -0.092)  <0.001 | -0.018  (-0.041, 0.005)  0.131 |
| Calcium (mg/day) | 0.015  (0.012, 0.017)  <0.001 | 0.010  (0.007, 0.013)  <0.001 | 0.024  (0.019, 0.029)  <0.001 | -0.002  (-0.003, -0.002)  <0.001 | -0.002  (-0.003, -0.002)  <0.001 | 0.000  (-0.000, 0.001)  0.471 |
| Phosphorus (mg/day) | 0.021  (0.019, 0.023)  <0.001 | 0.015  (0.013, 0.017)  <0.001 | 0.036  (0.032, 0.040)  <0.001 | -0.004  (-0.004, -0.003)  <0.001 | -0.003  (-0.003, -0.003)  <0.001 | 0.000  (-0.000, 0.001)  0.222 |
| Dietary TAC quartiles |  |  |  |  |  |  |
| Q1 | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. |
| Q2 | 4.948  (-0.486, 10.381)  0.080 | 3.962  (-0.428, 8.353)  0.082 | 9.452  (0.007, 18.897)  0.055 | -0.957  (-1.918, 0.003)  0.056 | -0.686  (-1.606, 0.233)  0.149 | -0.068  (-0.703, 0.568)  0.836 |
| Q3 | 6.201  (0.347, 12.056)  0.042 | 3.806  (-1.242, 8.854)  0.145 | 11.008  (0.488, 21.528)  0.045 | -1.168  (-2.227, -0.110)  0.035 | -1.454  (-2.391, -0.517)  0.004 | -0.654  (-1.324, 0.016)  0.061 |
| Q4 | 12.304  (6.999, 17.608)  <0.001 | 6.619  (2.272, 10.966)  0.004 | 19.999  (10.706, 29.292)  <0.001 | -2.048  (-2.998, -1.097)  <0.001 | -2.017  (-2.941, -1.092)  <0.001 | -0.959  (-1.641, -0.276)  0.008 |
| Data are presented by % (SE) for categorical variables or mean ± SE for continuous variables. | | | | | | |

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| **Table S3. Multivariate linear regression analysis of TAC and skeletal muscle mass after taking into account the non-normal distribution of TAC** | | | |
|  | Log (TAC) | | |
| Model 1 | Model 2 | Model 3 |
| Appendicular relative lean mass (g/kg) | 3.715 (2.562, 4.867) <0.001 | 2.366 (1.639, 3.093) <0.001 | 1.488 (0.712, 2.264) <0.001 |
| Trunk relative lean mass (g/kg) | 1.859 (0.950, 2.769) <0.001 | 1.389 (0.708, 2.071) <0.001 | 1.216 (0.476, 1.956) 0.001 |
| Total relative lean mass (g/kg) | 5.914 (3.887, 7.941) <0.001 | 3.991 (2.599, 5.383) <0.001 | 3.035 (1.543, 4.527) <0.001 |
| Total relevant fat (kg/kg) | -0.614 (-0.822, -0.406) <0.001 | -0.420 (-0.566, -0.275) <0.001 | -0.337 (-0.493, -0.181) <0.001 |
| Trunk relevant fat (kg/kg) | -0.666 (-0.868, -0.463) <0.001 | -0.568 (-0.739, -0.396) <0.001 | -0.445 (-0.629, -0.261) <0.001 |
| BMI (kg/m2) | -0.279 (-0.442, -0.115) 0.001 | -0.230 (-0.395, -0.064) 0.007 | -0.299 (-0.479, -0.118) 0.001 |
| Model 1: without adjustment.  Model 2: age, sex, race, and socio-economic status were adjusted.  Model 3: Model 2 plus smoking, alcohol, physical activity, sedentary activity, protein, dietary fiber, calcium, and phosphorus were adjusted.  β, 95% confidence intervals (CIs), and P value are presented. | | | |

supplyment figure 1

**Figure S1. Dose-response relationship between dietary TAC and all outcomes stratified by age. Sex, race, socio-economic status, smoking, alcohol, physical activity, sedentary activity, protein, dietary fiber, calcium, and phosphorus were adjusted.**

supplyment figure 2

**Figure S2. Dose-response relationship between dietary TAC and all outcomes stratified by sex. Age, race, socio-economic status, smoking, alcohol, physical activity, sedentary activity, protein, dietary fiber, calcium, and phosphorus were adjusted.**