**eFigure 1**. Change in Cognitive Score1 Per IQR increase2 in Source Tracers and PM2.5 (β (95% CI)) for 1- and 2-Year Moving Averages3



1Controlling for: age, sex, education, season, physical activity, BMI, smoking, heart disease, diabetes, and hypertension

2IQR for BC= 53.0 ng/m3, nickel=2.00ng/m3, sulfur =390 ng/m3, PM2.5=1750 ng/m3

3Y-axes are scaled according to cognitive test

**eTable 1.** Pearson Correlation Coefficients Comparing Annual Average Pollutant Concentrations1

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | BC | Nickel | Sulfur | Silicon |
| PM2.5 | 0.37\* | 0.72\* | 0.95\* | 0.19\* |
| BC | 1.00 | 0.87\* | 0.47\* | -0.34\* |
| Nickel | -- | 1.00 | 0.87\* | 0.003 |
| Sulfur | -- | -- | 1.00 | -0.34\* |
| Silicon | -- | -- | -- | 1.00 |

12003-2012; \*p-value<0.05

**eTable 2.** Change in Cognitive Z-score1, Per 1 year IQR increase2 in Source Tracer Pollutants (β (SE))

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Verbal Memory**  (16 pts) | **Recognition**  (16 pts) | **Mental Processing** (#) | **Executive Function** (#) | **Visuospatial**  (12 pts) |
| BC | -0.36 (0.04)\*\* | -0.13 (0.02)\*\* | -0.104 (0.02)\*\* | -0.08 (0.02)\*\* | -0.02 (0.02) |
| Nickel | -0.22 (0.08)\*\* | -0.19 (0.04)\*\* | -0.078 (0.02) | -0.16 (0.33)\*\* | -0.02 (0.01)\* |
| Sulfur | 0.08 (0.10) | -0.17 (0.05)\*\* | -0.05 (0.04) | -0.01 (0.04) | 0.07 (0.03)\*\* |
| Silicon | 0.04 (0.05) | -0.08 (0.02)\*\* | -0.02 (0.02) | -0.01 (0.02) | 0.03 (0.02)\* |
| PM2.5 | 0.21 (0.10)\*\* | -0.11 (0.05)\*\* | 0.01 (0.04) | 0.08 (0.04) | 0.82(0.04)\*\* |

1Controlling for: age, sex, education, season, physical activity, BMI, smoking, heart disease, diabetes, and hypertension

2 IQR for PM2.5 = 1750 ng/m3, sulfur =390 ng/m3, nickel =2.00ng/m3, BC = 53.0 ng/m3, silicon = 11.0 ng/m3

p value \*\*<0.05 \*<0.10

**eTable 3.** Change in Cognitive Score, Per IQR2 increase in Difference between Waves of Source Tracer Pollutants (β (SE))

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Verbal Memory**  (16 pts) | **Recognition**  (16 pts) | **Mental Processing** (#) | **Executive Function** (#) | **Visuospatial**  (12 pts) |
| BC | -3.66 (0.50)\*\* | -0.43 (0.14)\*\* | -2.01 (0.49)\*\* | -1.50 (0.41)\*\* | -0.08 (0.11) |
| Nickel | -1.60 (0.49)\*\* | -0.18 (0.13) | -1.00 (0.48)\*\* | -1.94 (0.40)\*\* | -0.14 (0.12) |
| Sulfur | 2.70 (0.34)\*\* | 0.12 (0.09) | -0.16 (0.34) | 1.41 (0.28)\*\* | 0.46 (0.08)\*\* |
| Silicon | 3.14 (0.46)\*\* | 0.28 (0.13)\*\* | -0.89 (0.46)\* | 3.05 (0.40)\*\* | 0.94 (0.11)\*\* |
| PM2.5 | 3.38 (0.40)\*\* | 0.18 (0.11)\* | 0.27 (0.40) | 2.02 (0.32)\*\* | 0.47 (0.10)\*\* |

1Controlling for: age, sex, education, season, physical activity, BMI, smoking, heart disease, diabetes, and hypertension

2 IQR for PM2.5 = 866 ng/m3, sulfur =113 ng/m3, nickel =0.71/m3, BC = 85.6 ng/m3, silicon = 21.1 ng/m3

p value \*\*<0.05 \*<0.10