

Supplemental Table 1. Demographic Characteristics of Participants with Airway Restriction (N=304) or COPD (N=440)

| | Spirometrically Defined Lung Function Outcomes | |
|----------------------------|--|-----------------|
| | Airway Restriction (N=304) | COPD (N=440) |
| Demographics, N (%) | | |
| Age, Mean \pm SD | 45.7 \pm 16.1 | 45.6 \pm 15.0 |
| Male Sex | 164 (54.0) | 217 (49.3) |
| Race | | |
| Non-Hispanic White | 48 (15.8) | 272 (61.8) |
| Non-Hispanic Black | 210 (69.1) | 100 (22.7) |
| Hispanic | 12 (4.0) | 46 (10.5) |
| Other | 34 (11.2) | 22 (5.0) |
| Language | | |
| English | 298 (98.0) | 414 (94.1) |
| Spanish | 6 (2.0) | 26 (5.9) |
| Education | | |
| \leq High-School | 10 (3.3) | 7 (1.6) |
| >High School | 155 (51.0) | 181 (41.1) |
| Unknown | 139 (45.7) | 252 (57.3) |
| Income | | |
| 0-<25K | 91 (29.9) | 153 (34.8) |
| 25K-<55K | 89 (29.3) | 133 (30.2) |
| \geq 55K | 26 (8.6) | 45 (10.2) |
| Unknown | 98 (32.2) | 109 (24.8) |

Spirometrically Defined Lung Function Outcomes

Airway Restriction (N=304)

COPD (N=440)

Demographics, N (%)

| | | |
|---------------------|------------|------------|
| Physically Active * | 83 (27.3) | 154 (35.0) |
| Smoking Status † | | |
| Non-Smoker | 130 (42.8) | 88 (20.0) |
| Former Smoker | 53 (17.4) | 85 (19.3) |
| Current Smoker | 121 (39.8) | 267 (60.7) |

* Physically active was defined as engaging in 150 minutes of moderate-intensity or 75 minutes of vigorous-intensity activity per week.

† Current Smokers reported never smoking or have urinary cotinine value >10 ng/mL. Former smokers reported they had quit smoking or have urinary cotinine value 1-10 ng/mL. Never smokers reported never smoking or have a urinary cotinine value <1 ng/mL.

Supplemental Table 2. Adjusted Associations between Diet Components and Pre-Bronchodilator Lung Function Outcomes

| | Lung Function Outcomes* | |
|------------------------------------|-----------------------------------|---|
| | Airway Restriction (FVC < LLN) | COPD (FEV ₁ /FVC Ratio < LLN) |
| Dietary Components †‡ | | |
| Fiber (per SD: 9.0 gram) | 0.80 (0.67, 0.96) | 0.83 (0.70, 0.98) |
| Fruit (per serving) | 0.74 (0.58, 0.94) | 0.69 (0.56, 0.84) |
| Vegetable (per serving) | 0.73 (0.55, 0.95) | 0.85 (0.71, 1.01) |
| Whole Grains, (per SD: 18.4 grams) | 0.94 (0.81, 1.10) | 0.90 (0.79, 1.02) |
| SSB (per serving) | 1.11 (1.04, 1.18) | 1.07 (1.03, 1.11) |
| Nuts & Legumes (per serving) | 1.03 (0.93, 1.14) | 1.01 (0.93, 1.09) |
| Red/Processed Meat (per serving) | 1.01 (0.92, 1.12) | 1.01 (0.94, 1.07) |
| Trans fat (per SD: 0.2%) | 1.11 (0.94, 1.31) | 1.06 (0.95, 1.19) |
| Omega-3 (per SD: 254.2 mg) | 1.03 (0.92, 1.16) | 1.01 (0.90, 1.13) |
| PUFA (per SD: 2.7%) | 0.93 (0.81, 1.07) | 0.92 (0.81, 1.04) |
| Sodium (per SD: 1.5 grams) | 0.96 (0.74, 1.25) | 0.94 (0.78, 1.14) |
| Alcohol (per serving) | 0.89 (0.79, 1.02) | 1.02 (0.96, 1.09) |

*Odds Ratio (95% CI) obtained from separated weighted logistic regression model between dietary components and various lung function outcomes identified by lung function measures below the lower limit of normal (LLN). Bolded values indicated associations that were statistically significant (p<0.05).

† Models adjusted for age (years), gender (male, female), height (cm), race/ethnicity (Non-Hispanic White, Non-Hispanic Black, Hispanic, Other), total energy intake (kcal), education (<=high-school, > high school, unknown), household income (0-25K, 25– 55K, ≥55K or unknown), BMI category (underweight, normal, overweight, obese), smoking status (non-smoker, former smoker, current smoker) and physically active (yes, no).

‡ Select variables associated per standard deviation (fiber, whole grains, trans fat, omega-3 fatty acid, polyunsaturated fatty acid and sodium). Remaining variables associated per serving (fruit, vegetables, SSB, nuts & legumes, red/processed meat, alcohol).

Supplemental Table 3. The association of AHEI, airway restriction and COPD, with additional adjustment for dietary patterns

| | Lung Function Outcomes* | |
|---|--------------------------|-------------------------------------|
| | Airway Restriction | COPD |
| | (FVC < LLN) | (FEV ₁ /FVC Ratio < LLN) |
| AHEI-2010 (per quartile increase) † | | |
| Additional Adjustment by dietary patterns‡: | | |
| Fruit, fiber and legumes | 0.86 (0.74, 1.00) | 0.82 (0.71, 0.96) |
| Meat, trans fats and sodium | 1.04 (0.85, 1.28) | 1.11 (0.98, 1.27) |
| SSB, omega-3 and PUFA | 1.03 (0.88, 1.21) | 0.93 (0.82, 1.07) |

*Odds Ratio (95%CI) obtained from separated weighted logistic regression model between dietary components and various lung function outcomes identified by lung function measures below the lower limit of normal (LLN). Bolded values indicated associations that were statistically significant (p<0.05).

† Models adjusted for age (years), gender (male, female), height (cm), race/ethnicity (Non-Hispanic White, Non-Hispanic Black, Hispanic, Other), total energy intake (kcal), education (<=high-school, > high school, unknown), household income (0-25K, 25–55K, ≥55K or unknown), BMI category (underweight, normal, overweight, obese), smoking status (non-smoker, former smoker, current smoker) and physically active (yes, no).

‡ Dietary patterns derived from Principal Component analysis (PCA)

Fruit, fibre and legumes explained 21.7% of total variance (fibre, total intake of fruits, whole grains, nuts and legumes)

Meat, trans fats and sodium pattern explained 15.6% of total variance (red/processed meat, trans fatty acids, and sodium)

Sugar-sweetened beverages (SSB), omega 3 fatty acids and polyunsaturated fatty acids (PUFA) explained 10.2% of total variance