

Table S1. Components of dietary patterns.

| MIND Diet Score | | Mediterranean Diet Score | | AHEI Diet Score | |
|------------------------------------|-----------|--|-----------|---|-----------|
| MIND Diet Components | | Mediterranean Diet Components | | AHEI Diet Components | |
| Frequency or Specified | Max score | Serving or Gram (sex-specific median) | Max score | Serving or Specified | Max score |
| Green Leafy Vegetables \geq 6/wk | 1 | Vegetables \geq Median | 1 | Vegetables \geq 5 | 10 |
| Other Vegetables \geq 1/day | 1 | | | | |
| Berries \geq 2/wk | 1 | Fruits and Nuts \geq Median | 1 | Fruits \geq 4 | 10 |
| Nuts \geq 5/wk | 1 | | | Nuts and Legumes \geq 1 | 10 |
| Beans \geq 3/wk | 1 | Legumes \geq Median | 1 | | |
| Olive Oil=Primary oil used | 1 | | | | |
| Butter, Margarine $<$ 1 T/d | 1 | | | | |
| Cheese $<$ 1/wk | 1 | Dairy $<$ Median | 1 | | |
| Whole Grains \geq 3/d | 1 | Whole Grains \geq Median | 1 | Whole Grains, \geq 90g for men, \geq 75g for women | 10 |
| Fish (not fried) \geq 1/wk | 1 | Fish \geq Median | 1 | | |
| Poultry (not fried) \geq 2/wk | 1 | | | | |
| Red Meat and products $<$ 4/wk | 1 | Red and Processed Meat $<$ Median | 1 | Red and Processed Meat=0 | 10 |
| Fast Fried Foods $<$ 1/wk | 1 | | | | |
| Pastries & Sweets $<$ 5/wk | 1 | | | Sugar-sweetened Beverage and Fruit Juice=0 | 10 |
| Wine, glass=1/d | 1 | Ethanol, 10-50g for men, 5-25g for women | 1 | Alcohol, 0.5-2 drinks for men, 0.5-1.5 drinks for women | 10 |
| | | Ratio of Monounsaturated to Saturated Fats \geq Median | 1 | Polyunsaturated Fats \geq 10% of energy | 10 |
| | | | | <i>trans</i> Fat \leq 0.5% of energy | 10 |
| | | | | Long-chain Fats (EPA+DHA) \geq 250mg | 10 |
| | | | | Sodium, lowest decile | 10 |
| Total MIND Diet Score | 15 | Total Med Diet Score | 9 | Total AHEI Diet Score | 110 |

Table S2. Algorithm for construction of frailty index

| Deficit components | Cut-offs |
|---------------------------------------|--|
| Anemia | 0 = No, 1= Yes |
| Cancer | |
| Chronic kidney disease | |
| Chronic obstructive pulmonary disease | |
| Cognitive impairment | |
| Congestive heart failure | |
| Depression | |
| Diabetes | |
| Heart Disease | |
| Hip replacement | |
| Hypertension | |
| Lower body joint disease | |
| Parkinson`s disease | |
| Peripheral arterial disease | |
| Stroke | |
| Walking up/down staircase ten steps | 0 = No difficulty/very easy/somewhat easy 0.33 = With a little or some difficulty 0.66 = With a lot of difficulty 1 = Unable to do" |
| Lifting/carry 10lbs | |
| Getting in/out of bed | 0= No difficulty and no assistance 0.33= With difficulty but no assistance 0.66= With difficulty with assistance 1= Unable to do |
| Bathing and showering | |
| Dressing | |
| Eating | |
| Toileting | |
| Walking across small room | 0 = No difficulty or don't do (unrelated to health) 0.33 = A little or some difficulty or don't do because of health 0.66 = "A lot" difficulty doing 1 = unable to do |
| Heavy housework | |
| Food preparation | |
| Shopping | |
| Using telephone | |
| Medication use | |
| Managing finances | 0 = No 0.5 = Either urinary or fecal incontinence 1 = Both urinary and fecal incontinence |
| Continence | |
| Self-rated health | Excellent = 0, very good = 0.25, good = 0.50, fair = 0.75, poor = 1 |
| Feel depressed (CES-D) | 0 = Rarely 0.33 = Some of the time 0.66 = Occasionally or moderately 1 = Most or all the time |
| Feel everything is an effort (CES-D) | |
| Could not get going (CES-D) | |
| Feel lonely (CES-D) | 0 = Most or all the time 0.33 = Occasionally or moderately 0.66 = Some of the time 1 = Rarely |
| Feel happy (CES-D) | |
| Orientation time (MMSE) | 0 = no error |
| Orientation place (MMSE) | 0.50 = 1 error |
| Attention (MMSE) | 1 = 2 or more errors |
| Recall (MMSE) | 0 = three correct, 0.50 = two correct, 1 = one or none correct |
| Weight loss 5% in past year | 0 = No, 1= Yes |
| Low physical activity | 0 = No, 1= Yes |
| Slow gait speed | 0 = Normal, 1=lowest quintile, stratified sex adjusted for height |
| Low grip strength | 0 = Normal, 1=lowest quintile, stratified by sex adjusted BMI |

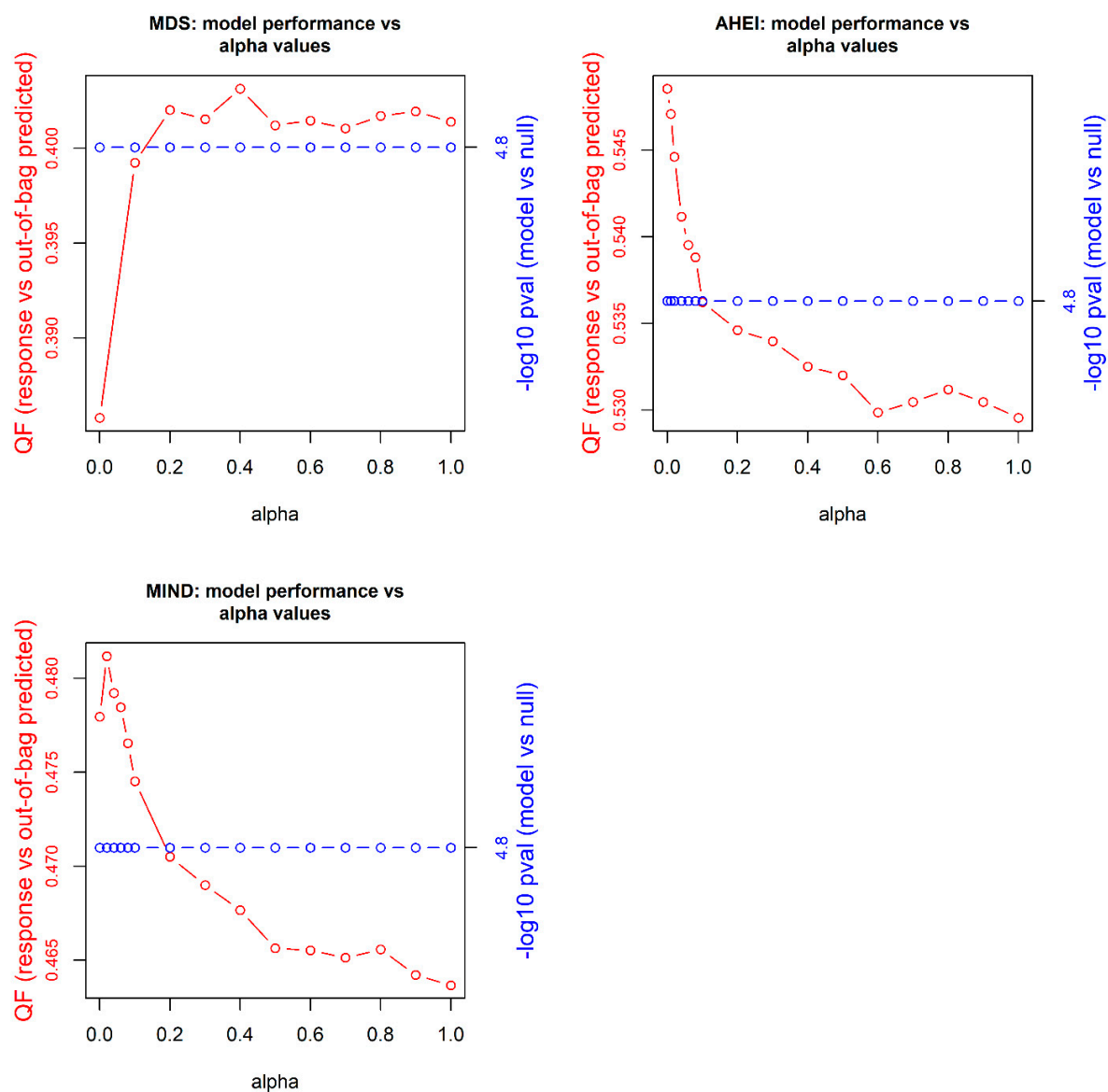


Figure S1. Cross-validated performance of prediction models across alpha values. The figure displays results from elastic net regression models runs. Quality function (QF) or $-\log_{10}$ of statistical significance (p-value of model vs null) across difference alpha values.

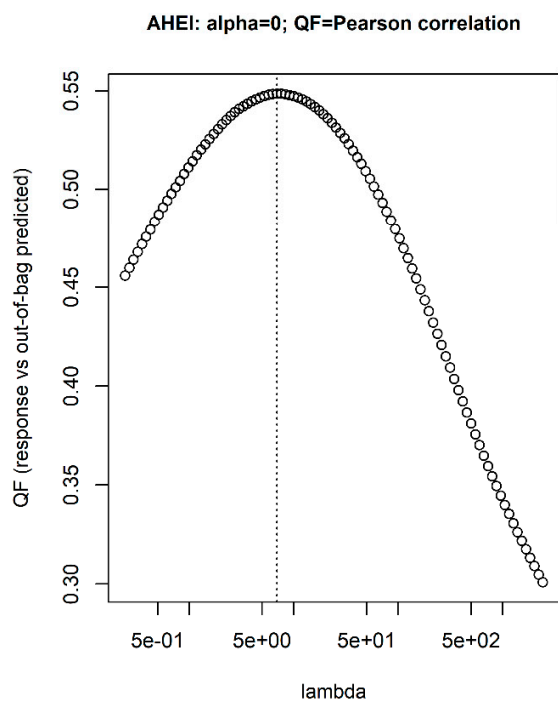
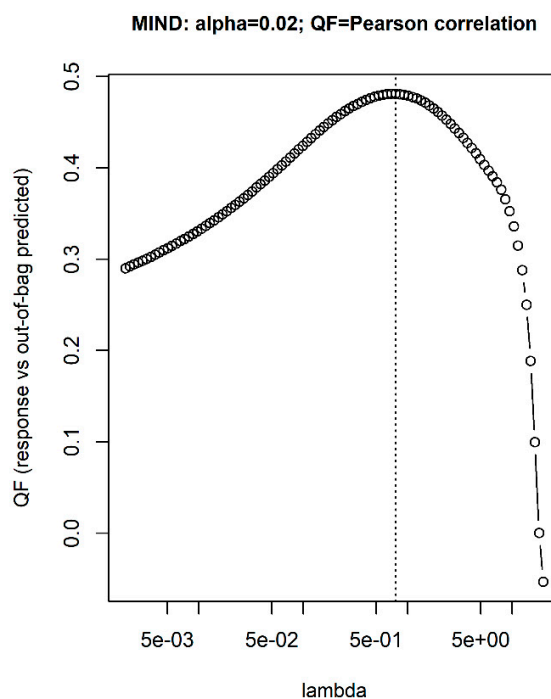
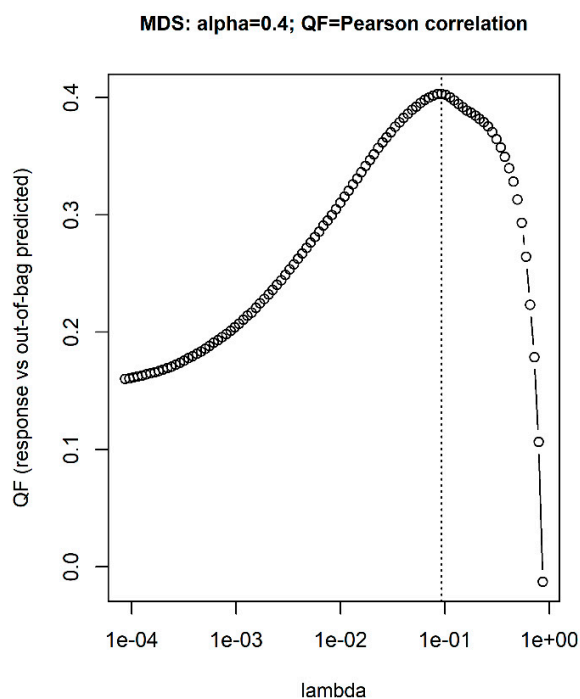


Figure S2. Selection of optimal penalty parameter λ by quality function (QF) maximization at the chosen mixing parameter α values for each diet score response.

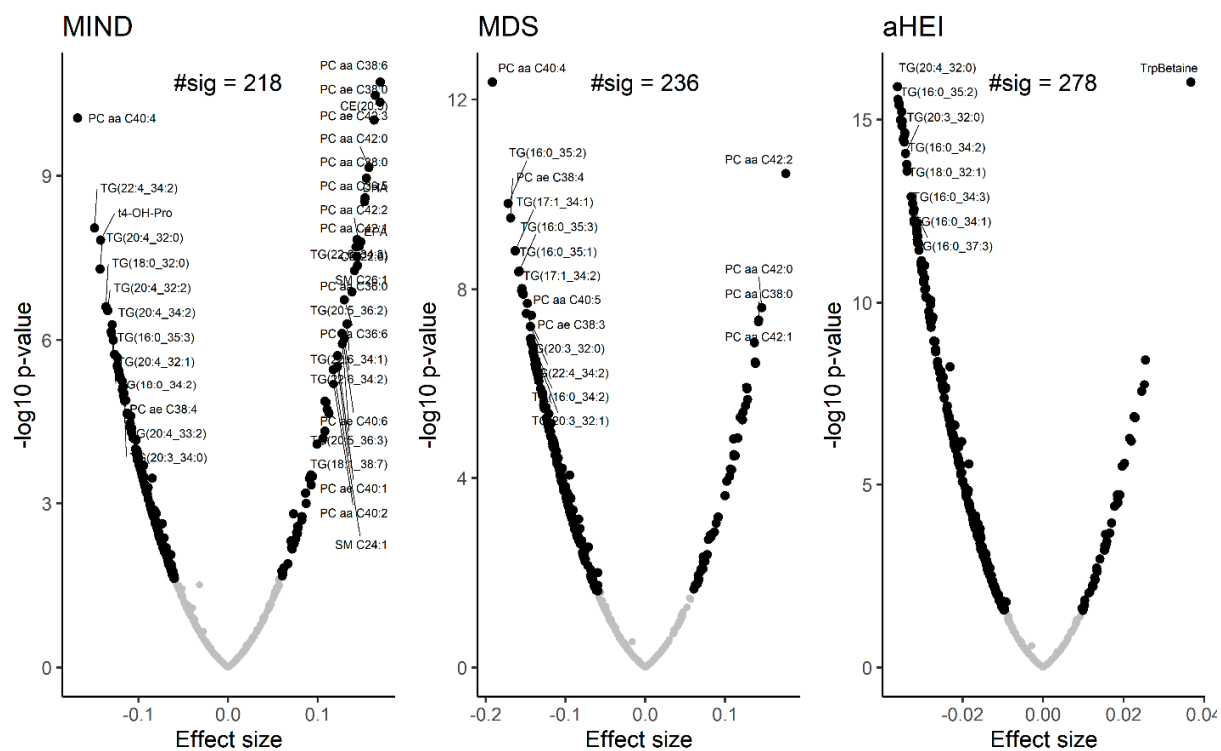


Figure S3. Associations between plasma metabolites and dietary patterns.

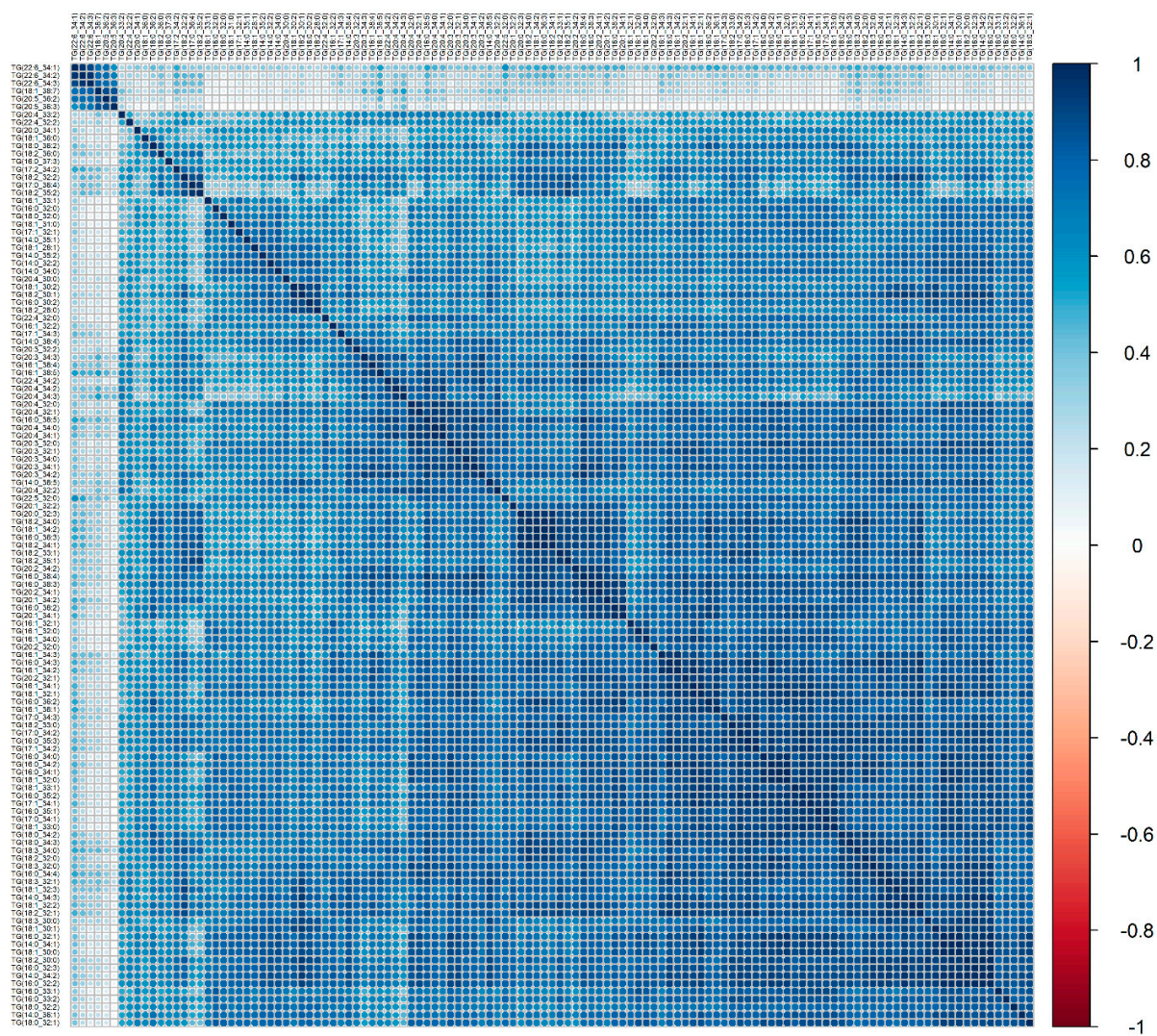


Figure S4. Correlation coefficients of diet-associated triglycerides.

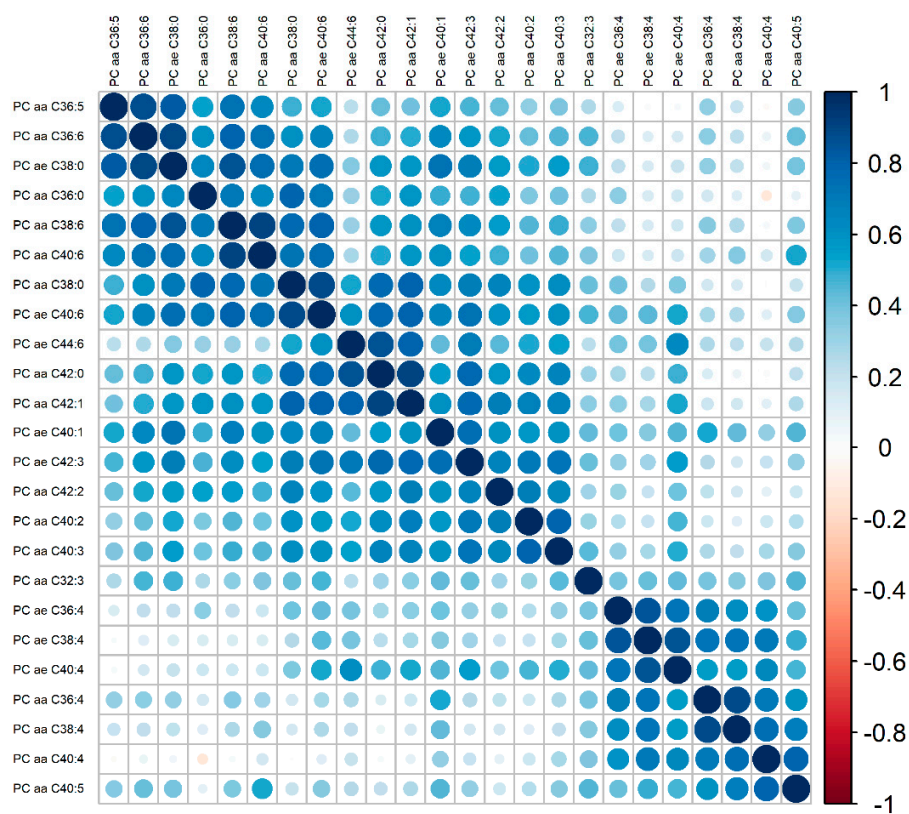


Figure S5. Correlation coefficients of diet-associated phosphatidyl-choline.