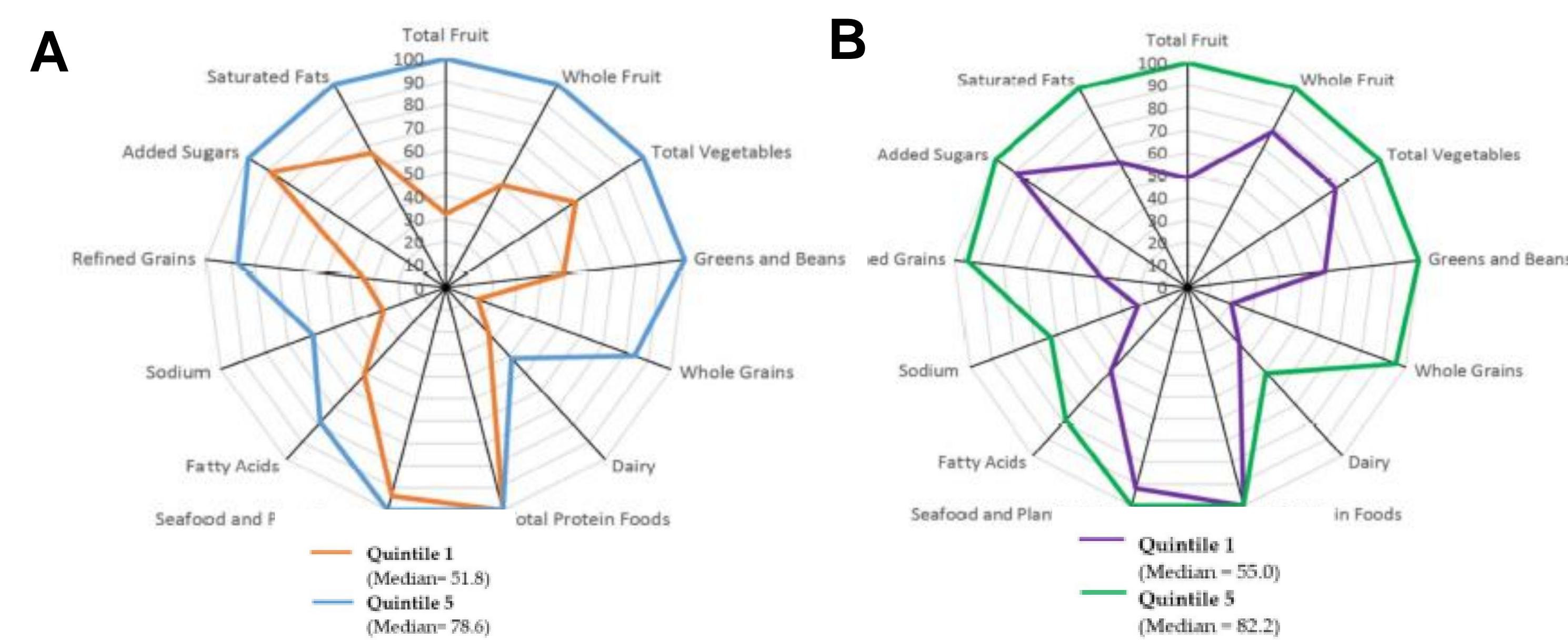


## Background

- Cigarette smoking is the leading cause of preventable death and disease in the US.
- Smoking can impact a number of biological systems and contribute to premature aging.
- Healthy diets have been shown to reduce mortality (among healthy and cancer patients)
- The Healthy Eating Index (HEI) is a measure to assess the quality of an individual's diet.
- It is used to assess how well a set of foods aligns with key dietary recommendations

**Figure 1. Score of how well Multiethnic Cohort Study (A) Men and (B) Women met the dietary guidelines for Americans for each component of HEI-2015 (among those in the highest and lowest quintile)**



- Based on the finding that chronological age has predictable effects on DNA methylation patterns at various 5'-C-phosphate-G-3' (CpG) sites scattered throughout the genome, methylation of DNA can be used to assess types of biological aging.
- Biological age measures have been associated with mortality and sometimes cancer risk.

## Study Objective

Examine whether HEI-2015 is associated with biological aging in smokers.

## Methods

### Study Population

Subset of Multiethnic Cohort Study (MEC) participants who smoked (n = 1,882 individuals who currently smoke and n = 858 individuals who quit smoking) with blood based biomarkers

### Measures of Biological Aging

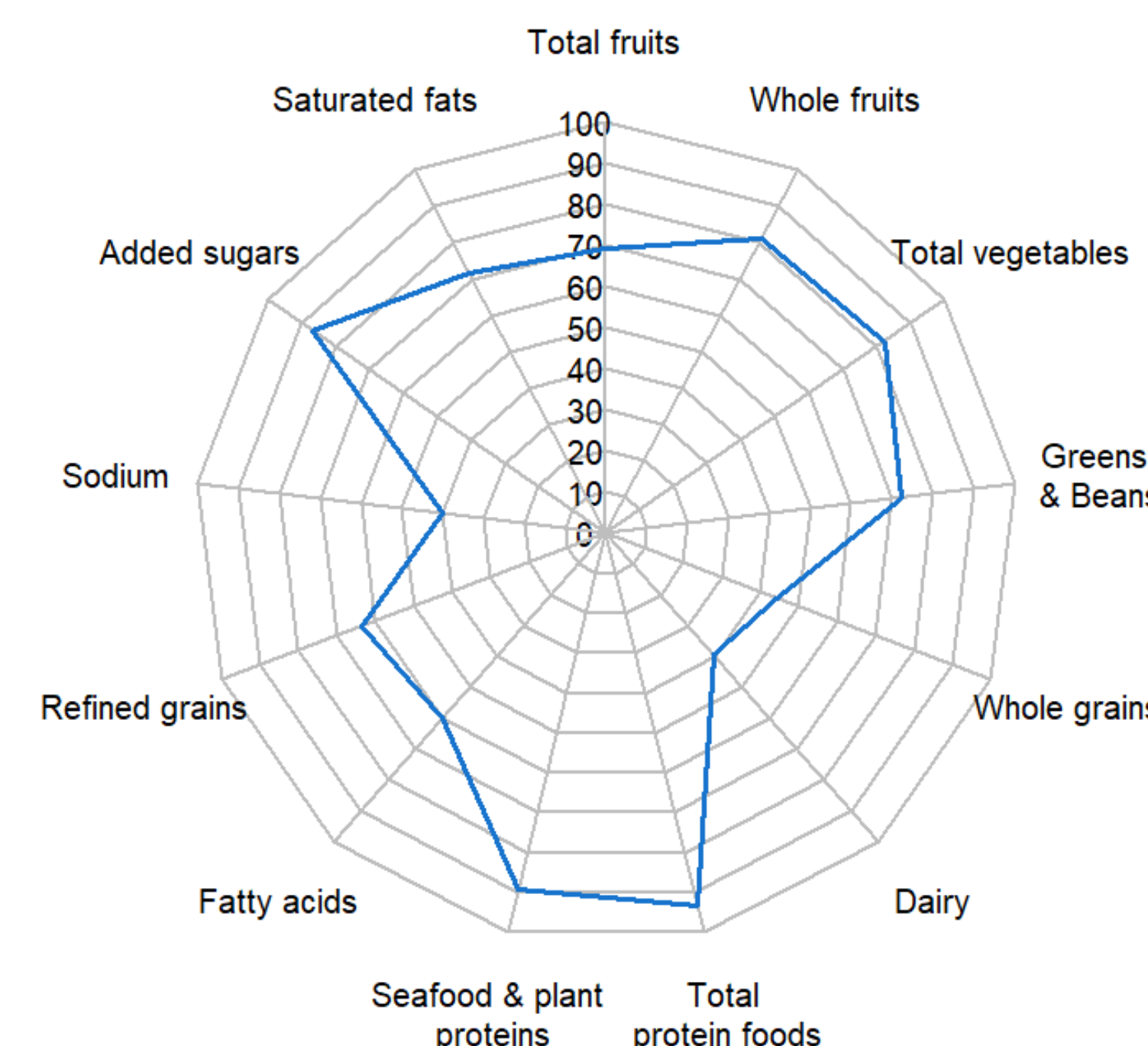
- GrimAge: an epigenetic aging measure that is a predictor for mortality risk
- Pace of aging: an epigenetic aging measure that captures speed of biological aging

### Statistical Analysis

Linear regression model with HEI-2015 as exposure variable and epigenetic age as the outcome variable controlling for other factors/

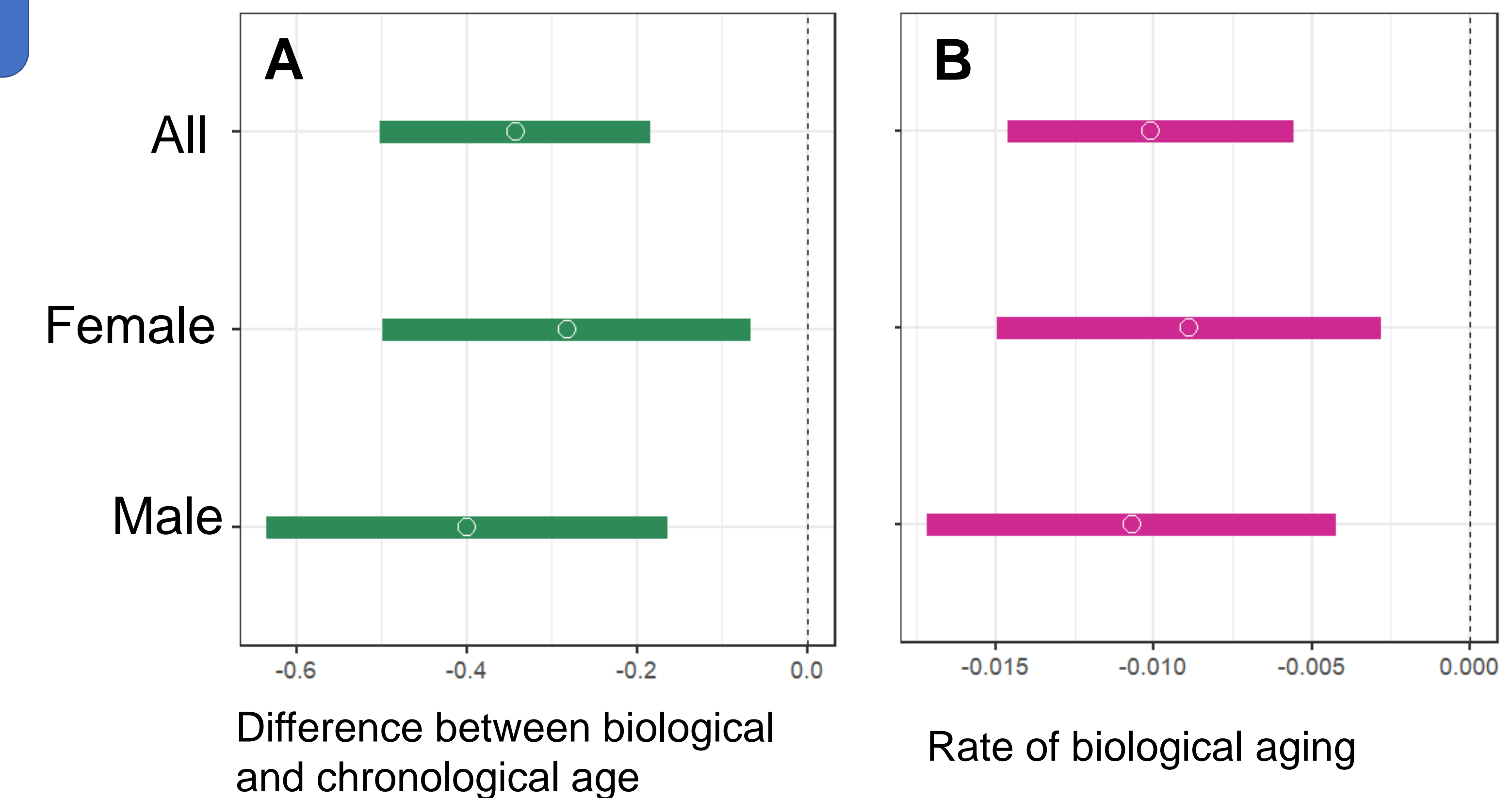
## Results

**Figure 2. Score of how well participants in this study met the dietary guidelines for Americans for each component of HEI-2015**



## Results

**Figure 3. Association between Healthy Eating Index-2015 and Biological Aging measures: (A) GrimAge and (B) Pace of Aging**



- A 10 unit increase HEI score was associated with 0.3 years reduction of biological aging, as measured by GrimAge
- A 10 unit increase HEI score was associated with a slower rate of biological aging, as measured by Pace of Aging

## Conclusion

- Among individuals who currently smoke, smoking cessation is the best way to reduce premature aging.
- Healthy eating may help to slow biological aging among those who currently smoke or have smoked.

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