

**Diet Quality Assessed by the Dietary Inflammatory Index and the Healthy Eating Index: An Analysis of the National Health and Nutrition Examination Survey (2015–2018)**

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**Objectives:** The Healthy Eating Index (HEI) is a measure of diet quality that assesses adherence to the Dietary Guidelines for Americans. In contrast, the Dietary Inflammatory Index (DII) evaluates the inflammatory potential of the diet by assessing foods and nutrients based on their effect on inflammatory biomarkers. In study populations outside of the U.S., the HEI and DII scores were inversely associated, yet not all studies adjusted DII for energy intake whereas HEI is scored on a density basis of 1,000 calories. Thus, the purpose of this study was to evaluate the relationship between HEI-2015 and DII using tertiles of energy intake among U.S. adults.

**Methods:** Analyses were conducted with data from 3,322 adults (ages 20–50 years, 54.5% female) participating in the National Health and Nutrition Examination Survey 2015–2018. Both the DII and HEI-2015 were computed using data from two 24-hour recalls. Next, DII scores were converted to tertiles (low, moderate, and high) and individuals in these groupings were then placed into separate tertiles of

energy intake (low, moderate, and high) resulting in nine DII-Energy groups. Differences in HEI-2015 scores across the nine energy-adjusted groups were assessed using linear regression.

**Results:** Low DII scores indicate a more anti-inflammatory dietary pattern and are associated with higher HEI scores (more compliant to Dietary Guidelines for Americans). Males in the Low Inflammation-Low Energy group had significantly higher HEI scores compared to High Inflammation-High Energy group ( $M = 63.58$  and  $38.99$ , respectively,  $\beta = 24.51$ ,  $p < 0.0001$ ). In females, those in the Low Inflammation-Moderate Energy group had significantly higher HEI scores compared to High Inflammation-High Energy group ( $M = 65.08$  and  $38.83$ , respectively,  $\beta = 26.95$ ,  $p < 0.0001$ ). Overall, the variance explained by the model for males and females was 29.8% and 34.1%, respectively.

**Conclusions:** Results suggest that adherence to the Dietary Guidelines for Americans translated into a more anti-inflammatory diet pattern in U.S. adults. Acknowledging the relationship between inflammation, diet quality, and energy, the DII may need to be energy-adjusted. This is especially true when comparing DII to other indices that account for energy intake.

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