

Association between Dietary Patterns and the 5-year Progression of Periodontal Disease

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Objectives: This study aims to examine the association between dietary pattern scores and the 5-year progression of periodontal disease among participants in the Buffalo Osteoporosis and Periodontal Disease Study (OsteoPerio).

Methods: We conducted analyses among 920 postmenopausal women with complete data and a mean age of 67 (SD = 7) at baseline 1997–2000. Average scores for the Healthy Eating Index-2015 (HEI), Alternative HEI (AHEI), Dietary Approaches to Stop Hypertension (DASH), and alternate Mediterranean Diet Score (aMed) were calculated using data from two FFQs administered 1994–1998 and 1997–2001. Periodontal assessments were conducted at baseline and the 5-year follow-up (2002–2005) to obtain whole mean mouth alveolar crestal height (ACH) in mm, percentage of gingival sites bleeding on probing (%BOP), pocket probing depth (PPD) in mm, and clinical attachment level (CAL) in mm. Linear regression models were used to examine the association between each score (10 points for HEI and

AHEI [possible range 0 to 100 points], 4 points for DASH [possible range 8 to 40 points], and 1 point for aMed [possible range 0 to 10 points]) and these periodontal measures at follow-up with adjustment for baseline periodontal measures, age, race, recreational physical activity (metabolic equivalent-hours/week), neighborhood socioeconomic status, smoking, education, and dental hygiene. Sensitivity analyses were run after adding 10 mm to the baseline values of ACH and CAL to define the 5-year measure for each tooth lost over follow-up due to periodontal disease.

Results: Higher AHEI, DASH, and aMed were associated with higher whole mean mouth ACH (indicative of greater oral bone loss) with adjusted β s (95%CI) of 0.037 (0.003, 0.072), 0.075 (0.003, 0.147), and 0.019 (0.001, 0.037), respectively. In sensitivity analyses, no statistically significant association was found after accounting for tooth loss due to periodontal disease.

Conclusions: AHEI, DASH, and aMed were found to have a modest and positive association with ACH. However, after accounting for tooth loss due to periodontal diseases, no association was found between dietary patterns and periodontal measures.

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