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Development of a food-based diet quality score and associations with eating styles and nutrient intakes in Finnish twins

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Abstract

Short dietary assessment instruments are often included to large-scale twin studies that focus on multiple health behaviors and disease outcomes. Due to their feasibility and low cost, food frequency questionnaires (FFQs) are usually employed to provide data on dietary intake and diet quality. Diet quality have been linked with eating styles such as meal and snacking frequency. However, little is known about how diet quality is related with various eating styles. We aimed to construct a food-based diet quality score (DQS) from a short FFQ to estimate diet quality and to examine its association with eating styles and nutrient intakes in Finnish twins. Participants were 3592 twin individuals (764 dizygotic [DZ] pairs and 430 monozygotic [MZ] pairs) aged 31–37 from the wave 5 of the FinnTwin16 study. The DQS (range 0–12 points) was constructed from a short FFQ that included dark bread, white bread, fruits and berries, vegetables, fish, whole grain, fast food, fat free or reduced-fat milk or milk products, sugar-sweetened soft drinks or juices, energy drinks, butter and margarine/vegetable oils. Eating styles were self-reported by questionnaire. Nutrient intakes were calculated from food diaries completed in a subsample of 249 twin individuals (45 same-sex DZ pairs and 60 MZ pairs). Data were analyzed using Pearson correlations and multiple regression models adjusted for covariates in individuals and pairwise analyses. Both in individuals and within twin pairs, a higher diet quality was associated with health-conscious eating, having breakfast, fewer evening meals, and a higher frequency and regularity of eating. No associations were found with night eating styles, food as a reward or food restricting/overeating. Among individuals, the DQS was positively correlated with the intakes of protein, fiber and magnesium and negatively with the intakes of total fat, saturated fat and sucrose ($r_{\max} = 0.30$ for magnesium). The associations with saturated fat, fiber and magnesium remained significant within same-sex DZ twin pairs ($r_{\max} = 0.40$ for magnesium) and with sucrose within MZ twin pairs ($r = -0.42$). The DQS is an easy-to-use short tool for ranking individuals and twin pairs according to overall diet quality. The DQS reflects eating styles and intakes of key nutrients related to diet quality.

Conflict of Interest

There is no conflict of interest