Parallel Session RTD Line 3 / Diet and weight gain prevention: observation perspective

Lecture 4: Dietary Energy Density in Relation to Subsequent Changes of Weight and Waist Circumference in European Men and Women

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Abstract
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Background: Experimental studies show that a reduction in dietary energy density (ED) is associated with reduced energy intake and body weight. However, few observational studies have investigated the role of ED on long-term weight and waist circumference change.

Methods and Principal Findings: This population-based prospective cohort study included 89,432 participants from five European countries with mean age 53 years (range: 20-78 years) at baseline and were followed for an average of 6.5 years (range: 1.9-12.5 years). Participants were free of cancer, cardiovascular diseases and diabetes at baseline. ED was calculated as the energy intake (kcal) from foods divided by the weight (g) of foods. Multiple linear regression analyses were performed to investigate the associations of ED with annual weight and waist circumference change.

Mean ED was 1.7 kcal/g and differed across study centers. After adjusting for baseline anthropometrics, demographic and lifestyle factors, follow-up duration and energy from beverages, ED was not associated with weight change, but significantly associated with waist circumference change overall. For 1 kcal/g ED, the annual weight change was -42 g/year [95% confidence interval (CI): -112, 28] and annual waist circumference change was 0.09 cm/year [95% CI: 0.01, 0.18]. In participants with baseline BMI < 25 kg/m2, 1 kcal/g ED was associated with a waist circumference change of 0.17 cm/year [95% CI: 0.09, 0.25].

Conclusion: Our results suggest that lower ED diets do not prevent weight gain but have a weak yet potentially beneficial effect on the prevention of abdominal obesity as measured by waist circumference.