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Slower self-reported eating rate is associated with favourable cardio-metabolic risk factors in UK adults

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Individuals who eat at a faster rate tend to have higher energy intakes [(1)] and increased BMI, adiposity and cardio-metabolic risk[(2,3)]. The association of eating rate has not been explored in a large UK cohort with multiple cardio-metabolic risk factors to date. Here we explore associations between self reported eating rate, body composition, energy requirements, hunger and glycemia in the densely phenotyped PREDICT 1 UK cohort (NCT03479866).

Self reported eating rate (SRER; 'slower than average', 'average', or 'faster than average') was analysed in $n = 968$ participants (75% females, $n = 232$ twin pairs, 18–65y) from the ZOE PREDICT 1 UK cohort [(4)]. Demographic information, habitual diet (EPIC food frequency questionnaire), anthropometric measures (height, weight, DEXA) and glycemic responses (venous clinic measures) were measured between 1–12 days. Differences in outcomes were tested by analysis of covariance (adjusted for age, sex, BMI, education, smoking status, alcohol intake, physical activity and sleep).

Participants (75% female) mean age and BMI was 46 years (±12) and 25.6 kg/m2 (±5.08). Twelve percent of participants had slower than average SRER, 56% average SRER and 32% faster than average SRER. A linear trend was observed for SRER and weight, BMI, visceral fat mass, and energy intake ($P < 0.05$ for all after adjustment for covariates). Fast-eaters had higher weight (by 6.9 kg), BMI (by 1.1 kg/m2), visceral fat mass (by 209 g) and energy intake (by 121 kcal) compared to those with slower than average SRER. Glycemic responses (15 minute rise) to a standardised test challenge meal (75 g carbohydrate and 50 g fat, following an overnight fast) was higher for faster eaters. There was a positive association between BMR (calculated using the Harris-Benedict equation) and SRER, which remained significant after adjusting for participants' BMI ($P < 0.05$). Energy intake remained positively associated with SRER, independent of BMR (BMR matched subcohort, $n = 97$). SRER was more similar in monozygotic twin pairs compared to dizygotic twin pairs (57% vs 51%).

In this deeply phenotyped cohort, we find multiple associations between SRER and higher energy intakes, body weight measures and early phase glycemic response within a single UK population. The association between BMR and eating rate suggests that faster eating rates may be driven by higher energy requirements and reflect a behavioural adaptation to increased energy requirements. Increased energy intake over time leads to weight gain, thus eating slowly may be a simple and effective behavioural strategy to control energy intake.

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