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Adipose tissue *trans* fatty acids and changes in body weight and waist circumference

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Introduction: Previous studies have suggested that intake of *trans* fatty acids (TFA) may play a role in the development of obesity. For fatty acids not synthesized endogenously in humans, such as TFA, the proportions in adipose tissue tend to correlate well with the habitual dietary intake. Biomarkers may provide a more accurate measure of habitual TFA intake than dietary questionnaires. Our objective was to investigate the associations between specific TFA in adipose tissue and subsequent changes in body weight and waist circumference (WC).

Methods: TFA concentrations in adipose tissue biopsies from a random sample of 1869 men and women aged 50-64 y drawn from a large Danish cohort study were determined by gas chromatography. Baseline data on weight, WC and potential confounders were available together with information on weight and WC five years after enrolment. TFA were divided into three groups: 18:1 Δ 6-10t, vaccenic acid (18:1 Δ 11t) and rumenic acid (18:2 Δ 9c, 11t). The data were analysed using multiple regression with cubic spline modelling.

Results: The median proportion of total adipose tissue 18:1t was 1.17 % (90 % central range: 0.72, 1.74) in men and 1.13 % (0.74, 1.71) in women. No significant associations were observed between total 18:1t, 18:1 Δ 6-10t, vaccenic acid or rumenic acid and changes in weight or WC.

Conclusion: The present study suggests that the proportions of specific TFA in adipose tissue are not associated with subsequent changes in weight or WC within the exposure range observed in this population.

1. Conflict of interest:

None disclosed

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