Identification of a dietary pattern associated with greater cardiometabolic risk in adolescence

ABSTRACT

Background and aims: Energy dense, high fat, low fibre diets may contribute to obesity in young people, however their relationships with other cardiometabolic risk factors are unclear. We examined associations between an ‑energy-dense, high-fat and low-fibreø dietary pattern (DP) and cardiometabolic risk factors, and the tracking of this DP in adolescence. Methods and results: Data was sourced from participants in the Western Australian Pregnancy (Raine) Cohort Study. At 14 and 17 y, dietary intake, anthropometric and biochemical data were measured and z-scores for an ‑energy dense, high fat and low fibreø DP were estimated using reduced rank regression (RRR). Associations between DP z-scores and cardiometabolic risk factors were examined using regression models. Tracking of DP z-scores was assessed using Pearson's correlation coefficient. A 1 SD unit increase in DP z-score between 14 and 17 y was associated with a 20% greater odds of high metabolic risk (95% CI: 1.01, 1.41) and a 0.04 mmol/L higher fasting glucose in boys (95% CI: 0.01, 0.08); a 28% greater odds of a high-waist circumference (95% CI: 1.00, 1.63) in girls. An increase of 3% and 4% was observed for insulin and HOMA (95% CI: 1%, 7%), respectively, in boys and girls, for every 1 SD increase in DP z-score and independently of BMI. The DP showed moderate tracking between 14 and 17 y of age (r = 0.51 for boys, r = 0.45 for girls). Conclusion: An ‑energy dense, high fat, low fibreø DP is positively associated with cardiometabolic risk factors and tends to persist throughout adolescence.