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The association of breakfast frequency and cardiovascular disease (CVD) risk factors among adolescents in Malaysia

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Abstract

Breakfast frequency is associated with cardiovascular disease (CVD) risk in Western populations, possibly via the types of food eaten or the timing of food consumption, but associations in Malaysian adolescents are unknown. While the timing of breakfast is similar, the type of food consumed at breakfast in Malaysia differs from Western diets, which allows novel insight into the mechanisms underlying breakfast–CVD risk associations. We investigated foods eaten for breakfast and associations between breakfast frequency and CVD risk factors in the Malaysian Health and Adolescents Longitudinal Research Team study (MyHeARTs). Breakfast (frequency of any food/drink reported as breakfast in 7-day diet history interviews) and CVD risk factors (body mass index (BMI), waist circumference, fasting blood glucose, triacylglycerol, total cholesterol, high-density lipoprotein (HDL), low-density lipoprotein (LDL), and systolic and diastolic blood pressure) were cross-sectionally associated using linear regression adjusting for potential confounders (n = 795, age 13 years). Twelve percent of adolescents never ate breakfast and 50% ate breakfast daily, containing mean (SD) 400 (±127) kilocalories. Commonly consumed breakfast foods were cereal-based dishes (primarily rice), confectionery (primarily sugar), hot/powdered drinks (primarily Milo), and high-fat milk (primarily sweetened condensed milk). After adjustment, each extra day of breakfast consumption per week was associated with a lower BMI (−0.34 kg/m2, 95% confidence interval (CI) −0.02, −0.66), and serum total (−0.07 mmol/L 95% CI −0.02, −0.13) and LDL (−0.07 mmol/L 95% CI −0.02, −0.12) cholesterol concentrations. Eating daily breakfast in Malaysia was associated with slightly lower BMI and total and LDL cholesterol concentrations among adolescents. Longitudinal studies and randomized trials could further establish causality. © 2019 by the authors. Licensee MDPI, Basel, Switzerland.

Author Keywords

Blood pressure; BMI; Breakfast; Cardiovascular; Cholesterol; Health; MyHeARTs; Obesity; Waist circumference

Index Keywords

high density lipoprotein cholesterol, low density lipoprotein cholesterol, trace element, triacylglycerol, E2 protein, Cottontail rabbit papillomavirus, transcription factor, viral protein; adolescent, anthropometry, Article, basal metabolic rate, body mass, cardiovascular disease, cardiovascular risk, child, cholesterol blood level, clinical trial, cohort analysis, diastolic blood pressure, female, food intake, glucose blood level, human, male, meal frequency, meal skipping, nutritional assessment, physical activity, physical activity questionnaire, prospective study, questionnaire, risk factor, school child, sweetened condensed milk, systolic blood pressure, waist circumference, Western diet, cardiovascular disease, diet, Malaysia, meal; Adolescent, Breakfast, Cardiovascular Diseases, Cohort Studies, Diet, Humans, Malaysia, Nutrition Assessment, Risk Factors, Transcription Factors, Viral Proteins

Chemicals/CAS

E2 protein, Cottontail rabbit papillomavirus; Transcription Factors; Viral Proteins

Tradenames

Portable 217, seca, United Kingdom

Manufacturers

seca, United Kingdom

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