Abstract

**Background** Knowing what children and adolescents eat, how stable their diets are, and how diet relates to other chronic disease risk factors are important issues for public health nutrition.

**Setting and design** In 1998-9, 1120 children (grade 3) and adolescents (grade 9) took part in the European Youth Heart Study in Sweden. In 2004-5, 452 adolescents (grade 9) and young adults (aged 21) returned to a follow-up study.

**Methods** At both time points, diet was assessed by a single, interviewer-mediated 24-hr recall. Height, weight and physical activity were objectively measured. Smoking, alcohol use and other dietary behaviours were assessed by computer-administered questionnaire. The energy density of the diet (kJ/g) was assessed as an index of dietary quality (Study I). Major sources of energy, (saturated) fat and sucrose were described, together with the simulated impact of adherence to current food-based dietary guidelines (Study II). The clustering of risk factors (unhealthy dietary habits, physical inactivity, TV viewing, smoking and alcohol use) were explored (Study III). The stability of diets from childhood to adolescence, and from adolescence to young adulthood was calculated (Study IV).

**Results** Low dietary energy density was significantly associated positively with recommended foods, and negatively with energy-dense foods and soft drinks. Intakes of saturated fat and sucrose were higher than recommended, and strict adherence to current food-based dietary guidelines appears necessary in order to lower intakes substantially. Apart from a clustering of dietary behaviours, no clear pattern was seen between the risk factors. Tracking of foods was generally slight, in both the younger and older cohort; tracking of nutrients was somewhat stronger.

**Conclusions** This thesis presents an alternative dietary quality index, identifies some problem areas in the diets of children and adolescents, describes the clustering of unhealthy behaviours, and suggests that diets are slightly stable over time. Strengths and limitations discussed in this thesis could be taken into account in the design of future research and development of guidelines. It is hoped that the methods and results presented here furthers our understanding of some of the nutritional issues affecting children and adolescents.

**Keywords** 24-hr recall, nutritional epidemiology, dietary patterns, cardiovascular disease, food-based dietary guidelines, risk factor clustering, tracking