ABSTRACT

Introduction: Swedish children are the healthiest in Europe. Through regular visits to well-baby clinics, infants and young children are checked and parents given information and advice on diet and other relevant matters for their child. For a long time, adequate nutrition during infancy and childhood has been focused on encouraging proper nutrition, preventing malnutrition and deficiency states, and obtaining optimal growth. Today, malnutrition and deficiency states in infants and children are rare. But other public health problems have arisen. Nutrition early in life is now thought to influence health and diseases even in adulthood. Thus promotion of a healthy diet in early life is important for preventing public health diseases such as iron deficiency, cardiovascular disease, obesity, and dental caries.

Aims: This study investigates health implications of dietary intake in infancy and early childhood. More specific focus was on the associations between dietary fat intake and serum lipid levels in infants, early dietary intake, iron status, dental caries, and Body Mass Index (BMI) at 4 years of age. In addition, hereditary factors and changes over time were evaluated.

Methods: Before 6 month of age, 300 healthy infants were recruited from well-baby clinics in Umeå. This thesis is based on secondary analysis of a prospective study in these infants run from 6-18 months and a follow-up of 127 of the children at 4 years. Between 6-18 months and at 4 years, dietary intakes were assessed, anthropometric measures performed, and venous blood samples taken. At 4 years, a dental examination was also performed and anthropometric data and blood samples were collected from parents and included in the study.

Results: All but two infants were ever breastfed and at 6 months 73% were still breastfed. The quality of dietary fat was not within national recommendations. At 4 years, intake of vitamin D and selenium were below and intake of sugar and sweet products above the recommendations. In girls, but not boys, higher polyunsaturated fatty acid intake was associated with lower levels of total cholesterol, low-density lipoprotein cholesterol, and apolipoprotein B levels. Iron status of the children was generally good and no child had iron deficiency anaemia (IDA). Children’s haemoglobin (Hb) levels tracked from infancy to 4 years and correlated with their mother’s Hb. Fortified infant products and meat were important sources of iron at both 12 months and 4 years. Children with frequent intake of cheese had less caries in this population with low caries prevalence. We found higher protein intake over time to be associated with higher Body Mass Index (BMI) at 4 years and high BMI at 4 years was associated with high BMI at 6 mo. There was also an association between the BMI of the child and that of its parents.

Conclusions: BMI of the child and parents (especially the father), and iron status at 6 months were predictors of these variables at 4 years of age. The quality rather than the quantity of dietary fat in infancy affected serum lipid values. Even in a healthy and well-nourished group of Swedish infants and young children, quality of food and intake of nutrients are important for current and later health of the child.