



UMEÅ UNIVERSITET

Umeå University Medical Dissertations, New Series No 2137

Complementary feeding based on Nordic foods

Effects on nutrient intake, growth,
biomarkers and eating behavior

Ulrica Johansson

Akademisk avhandling

som med vederbörligt tillstånd av Rektor vid Umeå universitet för
avläggande av filosofie/medicine doktorsexamen framläggs till
offentligt försvar i Bergsalen, byggnad 27, Norrlands
Universitetssjukhus, fredagen den 10 december, kl. 09:00.
Avhandlingen kommer att försvaras på svenska.

Fakultetsopponent: Professor Anna Winkvist,
Avdelningen för invärtesmedicin och klinisk nutrition,
Sahlgrenska akademi, Göteborgs universitet, Sverige.

Department of Clinical Sciences, Pediatrics

Organization

Umeå University
Department of Clinical Sciences
Pediatrics

Document type

Doctoral thesis

Date of publication

19 November 2021

Author

Ulrica Johansson

Title

Complementary feeding based on Nordic foods- Effects on nutrient intake, growth, biomarkers and eating behavior.

Abstract

Background: Early nutrition is fundamental to growth and development. Infants develop long lasting food preferences very early in life from food exposures when the brain is impressionable and sensory pathways are receptive. Early food experiences from bitter and sour tastes found in fruits and vegetables can establish long-lasting food preferences and healthy eating behavior. Fruits and vegetables can protect against future non-communicable diseases such as cardiovascular diseases, type 2 diabetes, overweight, obesity and cancer. Nordic fruits, berries and vegetables offer high environmental sustainability and favorable taste composition to establish a variety of food preferences. In this thesis, the focus is on early feeding among healthy, full-term infants and how to establish eating based on Nordic foods. **Methods:** The thesis is based on the randomized, controlled trial Optimized complementary feeding study (OTIS), with three papers on the outcomes of the trial and one validation paper. In the trial, the experimental Nordic group (n=125) consumed a diet based on Nordic foods, reduced in protein whereas the control group (n=125) followed the current nutritional recommendations for infants from the Swedish Food Agency. The Nordic group was exposed to a variety of flavors from Nordic, homemade fruit, berry and vegetable purées according to a taste portion schedule with repeated exposures for 24 days during 4-6 months of age. From 6 to 18 months of age the Nordic group experienced a multicomponent intervention of homemade Nordic baby food recipes, family recipes and protein-reduced baby food products together with parental support through social media. The control group followed the Swedish recommendations on how to introduce taste portions and solid foods and were supplied with commercial baby food products with regular content. At baseline, 9, 12 and 18 months of age anthropometry, blood samples, urine samples, questionnaires and dietary data were collected. **Results:** Of the 250 infants, 82% (n=206) finished the study until 18 months of age. The attrition rate was higher in the Nordic group (p=0.012). The Nordic group consumed more plant-based foods as fruits, berries, roots and vegetables during the entire study period except at 6 months of age. The protein intake was higher in the control group throughout the study. Plasma urea was higher in the control group as a response to the higher protein intake and plasma folate was higher in the Nordic group as a reflection of the higher fruit and vegetables intake. There were no differences in growth, total energy intake, iron status, breastfeeding duration or any demographic variables between the groups. **Conclusions:** A Nordic diet, reduced in protein, increased the daily intake of fruit, berries, roots and vegetables, establishing a preferable eating pattern lasting over 12 months. Parental support and systematical flavor learning of Nordic foods may have impacted the infants' dietary intake in the Nordic group. The Nordic diet is both feasible and safe for infants' growth, nutritional requirements and development during complementary feeding period between 4-18 months of age. Thus, it may serve as a healthy and environmentally sustainable alternative to future infants and their parents.

Keywords

Infant feeding, healthy diet, food preference, complementary feeding, eating behavior, repeated exposure, vegetables, fruit, Nordic diet, sustainable diet, nutrition, roots, berries, flavor learning.

Language

English

ISBN

print: 978-91-7855-552-9
PDF: 978-91-7855-553-6

ISSN

0346-6612

Number of pages

105 + 4 papers