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Dairy products as essential sources of iodine in the Swiss population

Background

Iodine deficiency is estimated by the WHO to be the leading cause of preventable mental retardation worldwide. National surveys have shown sufficient iodine intake in school aged children and pregnant women in Switzerland but other groups, such as weaning infants and women of reproductive age, have low intakes. Along with iodized salt, milk and dairy products are supplying more than half of the iodine intakes in Switzerland. However, milk products are an unpredictable source and iodine concentrations vary widely between seasons and production methods, with organic products generally showing lower concentrations. Milk and dairy products may gain importance as iodine sources because the Swiss Salt strategy, which aims to reduce salt consumption in order to prevent cardiovascular diseases, is anticipated to result in reduced iodine intake from salt.

Objective

The goal is to identify the key factors that influence the iodine content of milk and milk products, by investigating the effect of feeding patterns in dairy farming and of practices in milk processing. Further, this project will allow the development and implementation of a novel tracer-based method to investigate at which rates iodine is absorbed by humans.

Research Approach

1) Determination of dietary and seasonal factors influencing iodine content in milk; 2) Assessing the effect of increasing iodine supplementation to dairy cow diets on milk iodine concentration; 3) Investigating the effect of milk processing

on iodine content in dairy foods such as yogurt and; and 4) Quantifying rate of iodine absorption from milk in humans.

Relevance and Expected Outcomes

This interdisciplinary project will provide recommendations for dairy cow feeding and milk processing to achieve a specified range of iodine concentration in milk products, so that iodine intake by target populations in Switzerland is adequate, avoiding both I deficiency and excess. Further, this project will provide a new methodology for the assessment of dietary iodine bioavailability and iodine metabolism in humans.

Food System Challenges Addressed

Micronutrient deficiencies, iodine status and bioavailability, milk and dairy products.

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