

The Swiss iodized salt program provides adequate iodine for school children and pregnant women, but weaning infants not receiving iodine-containing complementary foods as well as their mothers are iodine deficient

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Background: If children and pregnant women in the population are iodine sufficient, it is generally assumed infants are also sufficient. But weaning infants may be at risk of iodine deficiency because iodized salt contributes little dietary iodine during this period. To fill this gap, iodine fortification of infant formula milk (IFM) and complementary foods (CF) is likely important.

Objectives: The objective of the study was to first confirm that Swiss school children and pregnant women remain iodine sufficient and then to assess iodine status in infancy and the relative contribution of breast milk and IFM/CF to their iodine intakes.

Methods: We measured urinary iodine concentrations (UIC) in national cross-sectional samples of: 1) pregnant women (n=648); 2) school children (n=916); 3) infants at three time points: at 3–4 d after birth and at 6 and 12 months (n=875); and 4) breast-feeding mothers (n=507). We measured breast milk iodine concentrations in the mothers, assessed iodine sources in infant diets, and analyzed iodine content of commercial IFM/CFs (n=22) and salt samples from the school children's households (n=266).

Results: Median (m) UICs in pregnant women (162 µg/liter) and school children (120 µg/liter) were sufficient, and 80% of the household salt was adequately iodized (≥15 ppm). However, mUICs in infants not receiving IFM/CF were not sufficient: 1) mUIC in breast-fed infants (82 µg/liter) was lower than in non-breast-fed infants (105 µg/liter) ($P < 0.001$) and 2) mUIC in breast-fed weaning infants not receiving IFM/CF (70 µg/liter) was lower than infants receiving IFM (109 µg/liter) ($P < 0.01$). mUIC was low in lactating mothers (67 µg/liter) and median breast milk iodine concentration was 49 µg/kg.

Conclusions: In countries in which iodized salt programs supply sufficient iodine to older children and pregnant women, weaning infants, particularly those not receiving iodine-containing IFM, may be at risk of inadequate iodine intakes.

Reference: Andersson M, Aeberli I, Wüst N, Piacenza AM, Bucher T, Henschen I, Haldimann M, Zimmermann MB. The Swiss iodized salt program provides adequate iodine for school children and pregnant women, but weaning infants not receiving iodine-containing complementary foods as well as their mothers are iodine deficient. *J Clin Endocrinol Metab.* 2010 Dec;95(12):5217-24. Epub 2010 Sep 1.