



Dear bOHP Subscribers,

We hope that your fall is off to a great start. This month, we highlight an article published in the *Maternal and Child Health Journal* that addresses iron deficiency in children ages 1 to 3. Sufficient dietary iron intake is critical to brain development in children of this age, and **studies have shown** children with severe early childhood caries are twice as likely to have low ferritin levels and six times more likely to have iron deficiency anemia. **This new study (subscription required)** found an interesting link between dietary iron and calcium levels, bringing back the connection to oral health.

Best Wishes,
The bOHP Team

Reducing Iron Deficiency in 18-36-months-old US Children: Is the Solution Less Calcium?

Kerling, et al.

Abstract

Objectives National surveys consistently identify iron deficiency (ID) in US children between 1 and 3 years of age, when the brain is rapidly developing and vulnerable to the effects of ID. However, controversy remains as to how best to recognize and prevent ID in young children, in part because of the multiple potential etiologies. The objective of this project was to assess ID in children and identify potential individual dietary predictors of status. **Methods** We examined three biomarkers of ID [soluble transferrin receptor (sTfR) and serum ferritin (SF), and body iron (calculated from sTfR and SF)] against parent-provided dietary calcium and iron intake for eight-three 18–36 month old children from middle class families. **Results** Using literature-based cutoffs, fourteen children (16.9 %) had at least one indicator of ID: low SF (<10 µg/l, 7.2 %), negative body iron (<0 mg/kg, 7.2 %) or elevated sTfR (>8.4 µg/ml, 13.2 %). All children consumed more than the Dietary Reference Intake (DRI) Estimated Average Requirement of 3 mg/d iron. The mean iron intake of children identified with ID approximated the Recommended Dietary Allowance of 7 mg/d. Most children (81 %) consumed above the DRI Adequate Intake of 500 mg/d of calcium. Calcium intakes were generally high and predicted lower body iron ($p = 0.0005$), lower SF ($p = 0.0086$) and higher sTfR ($p = 0.0176$). **Conclusions for Practice** We found rates of ID similar to US national averages. Dietary calcium intake predicted lower iron status more than deficits in iron intake. Teaching parents to balance calcium and iron intake in toddlers could be a strategy to prevent ID.

1. Schroth RJ, et al. Association between iron status, iron deficiency anaemia, and severe early childhood caries: a case-control study. *BMC Pediatrics* (2013) 13: 22.
2. Kerling EH, et al. Reducing iron deficiency in 18-36-months-old US Children: Is the solution less calcium? *Matern Child Health J* (2016) 20: 1798.

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