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Determination of iron absorption from intrinsically labeled microencapsulated ferrous fumarate plus ascorbic acid (sprinkles) in infants with 'low' versus 'high' hemoglobin using a dual stable isotope method

Tondeur M^{1,2}, Schauer C², Newton S³, Owusu-Agyei S³, Serfass R⁴, Zlotkin S^{1,2}

1. University of Toronto, Department of Paediatrics, Nutritional Sciences, and Centre for International Health, Toronto, Canada
2. The Hospital for Sick Children Research Institute, 555 University Avenue, Toronto, Canada
3. Kintampo Health Research Centre Health Research Unit, Ministry of Health, Kintampo, Ghana
4. Preventive Medicine and Community Health University of Texas, Medical Branch, Galveston, USA

AIM: To determine the absorption of two doses of iron (Fe) from Sprinkles when added to a maize-based complementary food provided to infants with varying hemoglobin concentrations. **METHODOLOGY AND RESULTS:** 44 infants 6-18 months of age from rural Ghana with hemoglobin concentration (Hb) <100 g/L and 44 with Hb ≥100 g/L were randomized to receive either 30 or 45 mg of elemental Fe as ⁵⁷Fe-labeled Sprinkles plus vitamin A, added to a maize-based porridge on three consecutive days. In addition, a ⁵⁸Fe tracer (0.2 mg as ferrous citrate) was infused intravenously (n=42). Blood was drawn at baseline and 14 days later to calculate Fe absorption by erythrocyte incorporation of ⁵⁷Fe and ⁵⁸Fe by inductively coupled plasma mass spectrometry. Geometric mean Fe absorption was 8.7 vs. 7.0% in infants with Hb <100 g/L and 4.6 vs. 4.5% in infants with Hb ≥100 g/L for the 30 and 45 mg dose, respectively. Fe absorption at both doses was significantly higher in infants with Hb <100 g/L as compared to infants with Hb ≥100 g/L (p=0.0001), however there was no significant effect of dose on Fe absorption (p>0.05). **CONCLUSIONS:** During infancy: (i) Fe from Sprinkles is well absorbed; and (ii) Fe absorption from Sprinkles is regulated according to Fe needs.