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**Increased risk of iron deficiency and reduced iron absorption but no difference in zinc, vitamin A or B-vitamin status in obese women in India**

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**Abstract**

**Purpose:**Two objectives were investigated: (1) to assess the risk of micronutrient deficiencies in relation to weight status in Indian women with a focus on iron but also including zinc, vitamin A and B vitamins and (2) to compare fractional iron absorption between obese (OB) and normal weight (NW) women.

**Methods:**Part 1 was a cross-sectional study including 146 healthy, middle-class women from Bangalore, India, with a BMI between 19 and 40 kg/m2. Anthropometrics and blood pressure were measured, and a fasting blood sample was obtained for the analysis of vitamin and mineral status, hepcidin, blood lipids and glucose. In part 2, 16 OB and 13 NW women consumed a standardized test meal labeled with the stable iron isotope 57Fe. Incorporation of the iron isotope into erythrocytes was measured 14 days later. In addition, iron status, hepcidin and inflammatory markers were determined.

**Results:**In part 1, compared to NW women, overweight/OB subjects had significantly higher C-reactive protein, serum ferritin, soluble transferrin receptor (sTfR) and hepcidin concentrations (p < 0.05). The odds ratio for having high sTfR concentrations (i.e., low iron status) with increasing BMI was 1.09 (95 % CI 1.02-1.17). None of the other micronutrients investigated showed any differences between weight status groups. In part 2, fractional iron absorption was significantly lower in the OB group compared to the NW group even after controlling for differences in iron status (10.0 ± 6.5 vs. 16.7 ± 4.6 %; p = 0.038).

**Conclusions:**OB women in Bangalore have an increased risk of low iron status and absorb less dietary iron; however, their risk of other micronutrient deficiencies was similar to NW women. Our results clearly demonstrate the importance of considering the double burden of malnutrition in the planning of prevention strategies especially in transition countries with emerging obesity epidemics.

**Keywords:**Double burden; Hepcidin; Iron absorption; Iron deficiency; Micronutrients; Obesity.

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