Zinc Balance in Premature Infants: Providing the Minimal Dietary Zinc Requirement

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A zinc balance study was conducted on low-birthweight infants (670–2,430 g) fed human breast milk (the mother’s or pooled) or formula (group 1, n = 17) and others fed in the same manner but with zinc supplementation (group 2, n = 19). The mean zinc concentrations of the diets in groups 1 and 2 were 2.2 ± 1.1 mg/liter and 8.4 ± 0.8 mg/liter, respectively, and the mean copper concentration of the diets in both groups 1 and 2 was 0.45 ± 0.12 mg/liter.

The studies were performed 7 to 128 days after birth, which corresponded to 29 to 45 weeks postconception. The turning point of the balance of zinc from negative to positive appeared to be greatly influenced by postconceptual age, being approximately 35 weeks in both groups 1 and 2. Other factors were taken into consideration, including the amount of zinc intake and postnatal age. The calculated minimal intake or requirement of dietary zinc necessary for adequate zinc retention in infants (250 μg/kg/day) was 1.0 mg/kg/day. Zinc supplementation does not appear to interfere with copper retention.