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## **Absorbed zinc and exchangeable zinc pool size are significantly greater in Pakistani infants receiving traditional complementary foods with zinc fortified micronutrient powder**

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Adequacy of zinc intake from breast milk alone becomes marginal in relation to infant requirements by around six months of age. Simple and cost effective strategies are needed at population level to ensure adequate intakes of zinc in infants and toddlers in populations at risk of zinc deficiency. We determined the amount of absorbed zinc (AZ) from a micronutrient powder (MNP) without and with 10 mg of zinc (MNP, MNP+Zn, respectively) added to local complementary foods used in Pakistan, and the impact on the exchangeable zinc pool (EZP) size. As a nested study within a large prospective cluster randomized trial, 6 month old infants were randomized to receive MNP or MNP+Zn. Stable isotope methodology was applied after ~ 3 and 9 months of use to measure AZ from MNP-fortified test meals of rice-lentils (khitchri) and EZP. Nineteen infants per group completed the first metabolic studies; 14 and 17 infants in MNP and MNP+Zn groups, completed the follow-up studies. Mean ( $\pm$ SD) AZs were  $0.1 \pm 0.1$  and  $1.2 \pm 0.5$  mg at the first point for the MNP and MNP+Zn groups, respectively ( $p < 0.001$ ); results were nearly identical at the follow-up measurement. EZP did not differ between groups at the first measurement but was less in the MNP group ( $3.7 \pm 0.6$  mg/kg) than in the MNP+Zn group ( $4.5 \pm 1.0$  mg/kg) at the second measurement ( $P = 0.01$ ).

These data confirm that the MNP+Zn in khitchri were well absorbed, and after a year of home fortification, zinc status assessed by EZP was significantly better for the MNP+Zn group. Additional field studies may be necessary to ascertain the adequacy of this dose for infants at high risk of deficiency.