Relationship between zinc and the growth and development of young children

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ABSTRACT. The purpose of this study was to evaluate the relationship between zinc and the growth and development of young children. The parents of 8102 young children were surveyed in person by a trained surveyor using structured questionnaires. The hair zinc concentration of the children was determined using an atomic absorption spectrophotometer. The height, weight, sitting height, and head circumference of the children were measured at follow-up visits. There was a positive correlation between hair zinc concentration and adaptive developmental quotient (ADQ; r = 0.3164, P = 0.0272) while no correlation was found between hair zinc concentration and body measurement Z scores or intelligence quotient (IQ). There was a strong positive correlation between hair zinc concentration and weight-for-age Z scores (r = 0.3618, P = 0.0416) and ADQ (r = 0.2761, P = 0.0387) in boys; there was no correlation between hair zinc concentration and body measurement Z scores, IQ, and ADQ in girls. In boys with normal hair zinc levels, ADQ was 9.58 (P = 0.0392), higher than in boys who had...
zinc-deficient hair. In girls with normal hair zinc levels, ADQ was 2.52 (P = 0.0296), lower than in girls with zinc-deficient hair. In conclusion, there is no significant correlation between hair zinc levels and IQ or Z scores for all body measurements in young children.

**Key words:** Zinc; Young children; Growth; Child development