Zinc supplementation has been shown to benefit linear growth. However the effect may depend on whether zinc is the most limiting nutrient. This study aims to investigate the effect of supplementation with zinc-given alone or with iron and vitamin-A in improving infants’ micronutrient status and linear growth. The study was a double-blind-community-intervention study involving 800 infants aged 3-6 months in rural East Lombok, West Nusa Tenggara. Syrup consisting of zinc-alone, Zn (10 mg/d), zinc+iron, Zn+Fe (10 mg/d of each), zinc+iron+vitamin-A, Zn+Fe+vit.A (10 mg/d of each zinc and iron plus 1,000 IU vitamin-A), or placebo were given daily for six months. Outcomes measured were length, weight, and micronutrient status (haemoglobin, serum zinc, ferritin and retinol), Zn+Fe and Zn+Fe+vit.A supplementations benefit zinc and iron status of the subjects, while Zn-alone supplementation disadvantaged haemoglobin and iron status. The highest increment in vitamin A and haemoglobin status was shown in Zn+Fe+vit.A group. An effect on linear growth was observed among initially-stunted subjects in Zn+Fe and Zn+Fe+vit.A groups who grew 1.1-1.5 cm longer than placebo. On the other hand, in the Zn-alone group, mean height-for-age Z-score decreased to a greater extent than placebo. The between-group difference in HAZ among initially-stunted subjects was significant after four months supplementation. While the difference was not significant in follow-up after 6 months, the pattern remained the same where means height-for-age Z-score in Zn+Fe+vit.A and Zn+Fe groups were higher than placebo and Zn-alone groups. Given the low haemoglobin/iron status of the subjects, zinc supplementation would have positive effect on growth if the low haemoglobin/iron status is also addressed and corrected.

Keywords: optimal growth, infant, iron, micronutrient, zinc