TECHNICAL BULLETIN

Maternal ZnAA Supplementation Shapes Maternal and Infant Gut Microbiomes

Introduction

Human pregnancy is a critical period in which maternal nutritional status influences fetal development and long-term health outcomes. Zinc (Zn) plays important roles in growth, immune function, neurodevelopment and gastrointestinal health. Emerging evidence suggests that Zn status may also influence gut microbial communities, creating an important link between maternal nutrition and infant development. This study evaluated whether maternal supplementation with a Zn amino acid complex (ZnAA) during pregnancy influences the microbiome of both mothers and their infants.

Study Objective

To evaluate the effects of maternal ZnAA (Zinpro® Zinc LG) supplementation during pregnancy on maternal and infant gut microbiome composition and to examine relationships between maternal zinc status and microbiome-associated outcomes.

Experimental Model

- Randomized, double-blind, placebo-controlled pilot study
- Pregnant women receiving ZnAA supplementation or placebo
- Maternal fecal microbiome analysis
- Infant microbiome analysis following birth
- Maternal serum trace mineral measurements

Key Findings

1. **Maternal ZnAA Supplementation Alters the Maternal Microbiome**
   Maternal ZnAA supplementation altered maternal microbiota composition, producing significant changes in several bacterial groups. The largest shifts occurred within bacterial taxa associated with gastrointestinal health and microbial metabolism (Fig 1.)

2. **Maternal ZnAA Supplementation Alters the Infant Microbiome**
   Infants born to ZnAA-supplemented mothers displayed significant differences in specific bacterial genera compared with infants in the placebo group. *Prevotellaceae* UCG-003 and *Lachnospiraceae* NK3A20 were both associated with maternal serum Zn levels (Fig 1.)

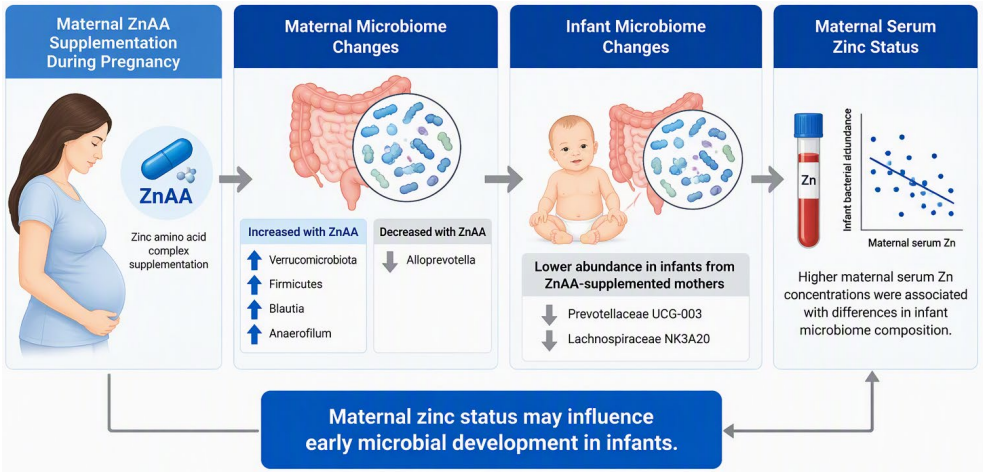


Figure 1. Maternal ZnAA Supplementation Altered Maternal Microbiome Composition and was Associated with Measurable Differences in Infant Bacterial Populations. These microbiome changes were associated with maternal serum Zn concentrations, suggesting maternal serum Zn nutrition may influence early microbial development.

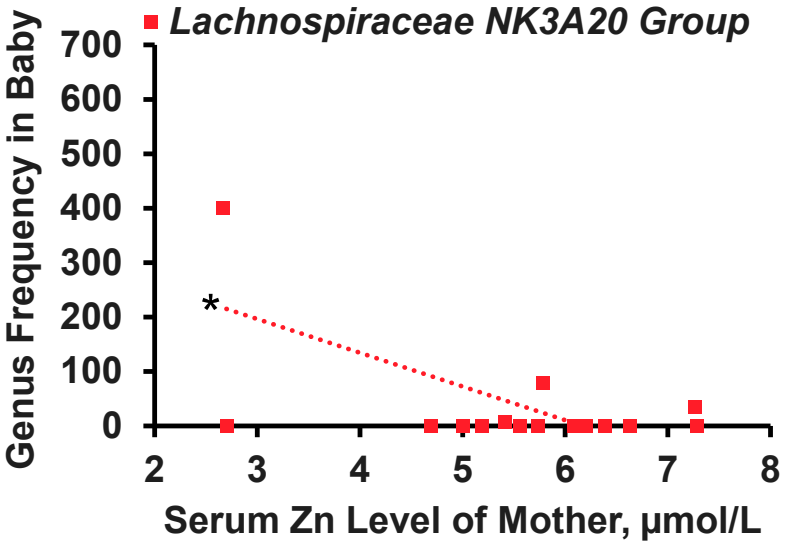
All trademarks are the property of Zinpro Corp.

©2026 Zinpro Corp. All rights reserved.

Key Findings, Cont.

3. **Maternal Zn Status is Associated With Infant Microbiome Composition**
   Higher maternal serum Zn concentrations were associated with lower abundance of *Lachnospiraceae* NK3A20 (Fig. 2a) and *Prevotellaceae* UCG-003 (Fig 2b.) in infants, suggesting maternal Zn status may influence establishment of the infant microbiome.

2a. *Lachnospiraceae* NK3A20



2b. *Prevotellaceae* UCG-003

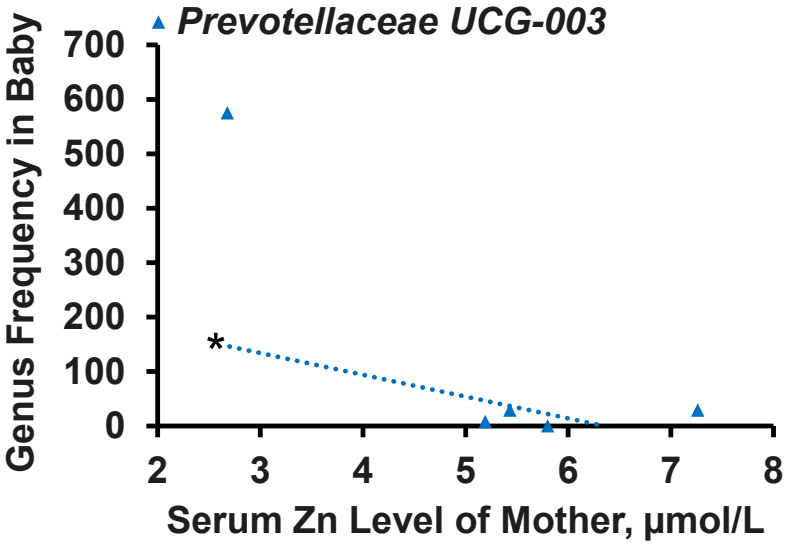


Figure 2a-b. Maternal ZnAA Supplementation Altered Maternal Microbiome Composition and was Associated with Measurable Differences in Infant Bacterial Populations. These microbiome changes were associated with maternal serum Zn concentrations, suggesting maternal serum Zn nutrition may influence early microbial development.
* $P < 0.05$
Data extrapolated from charts in publication

Conclusions & Implication

Maternal ZnAA supplementation altered gut microbial communities in both mothers and infants. Differences in infant microbiota composition were associated with maternal serum zinc concentrations, suggesting that maternal zinc status may influence early microbial development. These findings support a relationship between maternal zinc nutrition and establishment of the infant microbiome.

Maternal nutrition influences multiple aspects of fetal and infant development.
This pilot study suggests that ZnAA from Zinpro® Zinc LG supplementation during pregnancy may contribute to shaping early microbial communities in both mother and infant.
Additional clinical research is needed to determine how these microbiome changes influence long-term health outcomes and development.

Source: Sauer et al., 2026. Clinical Nutrition Volume 58. Article ID 106592 doi: 10.1016/j.clnu.2026.106592

All trademarks are the property of Zinpro Corp.
©2026 Zinpro Corp. All rights reserved.