

Alternations in gut microbiota in pregnancy and lactation

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Recent studies have shown that maternal gut microbiota in humans primes the offspring's immune and metabolic development during pregnancy and lactation. Due to environmental factors that are impractical to control in human studies, however, much remains unknown around changes in maternal gut microbiota during these stages. A new study published in *The FASEB Journal* utilized a pig model to enable exploration of maternal gut microbiota change due to pregnancy and lactation.

To rule out the confounding factors in human studies of diet and host genetics, a group of researchers examined fresh fecal samples from two breeds of sows. Based on these samples, they conducted comparative analyses of gut microbiota (including Coriobacteriaceae and Escherichia) and short-chain fatty acids (SCFAs) across different stages of gestation, lactation, and non-pregnancy.

Coriobacteriaceae and Escherichia were found to gradually increase over gestational time irrespective of breed, indicating that they are likely associated with the progression of pregnancy.

Relative to the gestation and non-pregnancy periods, lactation was associated with an increase in SCFA production in both breeds, suggesting that this phase has a distinct gut microbial structure and higher metabolic activity than the other phases.

"Our study shows, for the first time, characteristic changes in maternal gut microbiota through gestation, lactation, and non-pregnancy," stated Xiangfang Zeng, Ph.D., an associate professor at the State Key Laboratory of Animal Nutrition, Ministry of Agriculture Feed Industry Centre, College of Animal Science and Technology, China Agricultural University. "These findings could advance our understanding of pregnancy and lactation from a gut [microbiota](#) perspective and potentially improve [pregnancy](#) and [lactation](#) outcomes for both the mother and offspring."

"We cannot overestimate the microbiome in all of its dimensions, and this study reinforces this," said Thoru Pederson, Ph.D., Editor-in-Chief of *The FASEB Journal*.

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