

The influence of probiotics on the intestinal flora of premature infants

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According to our current understanding, intestinal microflora has a considerable effect upon health. The initial colonization with bacteria directly after birth could be of significant importance for the development of the intestinal flora, which then accompanies us throughout our entire lives. Can the administration of probiotic bacteria such as *Lactobacillus* or *Bifidobacterium* during the first month of life have a positive effect on the intestinal flora of newborn infants? This is the pivotal question of a new, Germany-wide clinical study headed by Professor Stephan Gehring from the Center for Pediatric and Adolescent Medicine at the Mainz University Medical Center. An affirmative answer may pave the way to enable premature babies in particular a better start into a healthy life. The project is being funded by the German Federal Ministry of Education and Research (BMBF) with EUR 400,000 over a time period of four years.

Microflora, and in particular healthy intestinal flora, has a regulatory influence on a multitude of organ functions. We speak for example of the gut-brain axis indicating that our intestinal flora has an effect on cerebro-physiological processes. It has also become apparent that the health of our intestinal flora is connected to many diseases. If our intestinal flora is disturbed or dysbiotic, this promotes the [development](#) of chronic inflammatory gastrointestinal diseases, obesity, diabetes, or chronic asthma.

Premature [infants](#), which in Germany represent a rising proportion of 20 to 25 percent of all newborns, are particularly susceptible to the

development of dysbiotic intestinal flora. Researchers assume that external influences such as surgical procedures, baby food, or antibiotics have a particularly negative effect on intestinal colonization in [premature infants](#). The majority of [premature babies](#) receive antibiotics either immediately after birth or slightly later. Their adverse effects fundamentally destroy the intestinal flora.

During the course of their study, the scientists will first administer probiotic bacteria to premature babies. In a subsequent step, they will analyze their stool samples using so-called 16S-rRNA sequencing. A smaller proportion of the study group will also receive the highly-complex deep metagenomic sequencing procedure. Based on the comparison of these stool samples, the experts want to find out whether the administration of probiotic bacteria really does have a positive effect on the development of intestinal flora in new-born infants.

"The restoration of healthy intestinal flora is of great significance for the healthy development of premature infants," emphasized Professor Stephan Gehring. "The chances of obtaining a deep insight into the development and treatment possibilities for intestinal [flora](#) through this project are exceptionally promising. There is no clinical studies of recent years that has explored the possibilities inherent in the administration of probiotic bacterial strains in such scientific breadth. This study may potentially permit premature infants a better start into a [healthy life](#)."

Provided by Universitaet Mainz

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