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## Gut bacteria in babies may predict type 1 diabetes in later life, study finds

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Bacteria in the gut of one-year-old infants could be used to predict their chances of developing type 1 diabetes in later life, scientists have announced. The disease most often occurs in children and adolescents and is triggered by the body's immune system when it attacks and destroys insulin-making cells in the pancreas.



“Our findings indicate that the gut of infants who go on to develop type 1 diabetes is notably different from healthy babies, and that several microbial biomarkers associated with future disease may be present as early as one year,” said the co-lead author of the study, Dr Malin B elteky of the Crown Princess Victoria’s Children’s Hospital, Link oping, Sweden.

“This discovery could be used to help identify infants at highest risk of developing type 1 diabetes before or during the first stage of disease and could offer the opportunity to bolster a healthy gut microbiome to prevent the disease from becoming established,” said B elteky.

As part of their study, the scientists compared the gut bacteria, known as the microbiome, of babies who went on to develop type 1 diabetes with that of a control group who remained healthy up to the age of 20, and found significant differences by the age of 12 months between the two groups.

Infants who went on to be diagnosed with type 1 diabetes had higher levels of bacteria that promote inflammation and are known to be involved in immune response, the team reports in the current issue of the journal of the European Association for the Study of Diabetes.

“Although the average age at which diabetes was diagnosed in our study was more than a decade after samples were collected, we identified distinct microbial signatures at one year of age,” said study co-author Patricia Milletich of the University of Florida.

The processes that lead to the development of autoimmune diseases such as type 1 diabetes usually begin long before any clinical symptoms of the disease appear, said Prof Eric Triplett also of the University of Florida. “Differences in the infant gut microbiome could shed important light on the complex interaction between the developing immune system, environmental exposures in childhood and autoimmunity.”

However, Triplett said studies with larger numbers of children would be needed to establish which bacteria have the biggest impact on the development of type 1 diabetes in later life and determine how effectively the bacteria can predict disease.