Toddlers' gut bacteria may predict future obesity, study suggests

Researchers identify differences in bacteria that colonise the gut in adults living with obesity

The gut bacteria of a toddler can predict whether they will be overweight later in life, research suggests.

The study, led by Gaël Toubon from the Université Sorbonne Paris, looked at the data from 512 infants who were part of a study that tracked the lives of 18,000 children born in France.

It observed the BMI of participants between the ages of two and five. Stool samples of the participants were collected at three and a half years of age, and found a positive association between BMI score at five years old and the ratio of two types of gut bacteria (*Firmicutes* to *Bacteroidetes)* directly related to obesity. The more *Bacteroidetes* an individual has, the less likely they are to be obese.

The gut, or gastrointestinal system, is part of the digestive system that runs through the body. It is vital to make sure that all the beneficial nutrients from food are absorbed and used for energy, growth and repair.

The makeup of the gut microbiota, the bacteria within your gut that helps to digest food, grows and changes in the first few months and years of life and disruption to its development can be associated with various conditions in later life, including inflammatory bowel disease, type 1 diabetes and childhood obesity.

Greater abundances of three categories of bacteria –*Eubacterium hallii* group, *Fusicatenibacter*, and *Eubacterium ventriosum* group – were identified as a risk factor for a higher BMI score.
The findings, presented at the European Congress of Obesity, also identified differences in the bacteria that colonise the gut in adults living with obesity, suggesting that changes in the gut microbiota that predispose to adult obesity begin in early childhood.

"The reason these gut bacteria affect weight is because they regulate how much fat we absorb," said Toubon. "Children with a higher ratio of *Firmicutes* to *Bacteroidetes* will absorb more calories and be more likely to gain weight.
"These findings suggests that what matters with the gut microbiota is not only a question of which bacteria are involved, but also what they are doing. The gut microbiota is emerging as an important early-life factor able to influence weight gain in childhood and later life," said Toubon.

"Our findings reveal how an imbalance in distinct bacterial groups may play an important role in the development of obesity. Further research is needed to drill down into the specific bacterial species

that influence risk and protection and to better understand when the switch to an obesity favourable gut microbiota may take place, and therefore the right timing for possible interventions."

Gut health is seen as an important indicator to obesity and general wellbeing. Previous studies show the bacteria in human guts, which help to break down food, differ in lean and obese people. - **www.theguardian.com, May 19, 2023**