

Early infant growth rate linked to composition of gut microbiota

May 9 2013

The composition of gut microbiota in a new-born baby's gut has been linked to the rate of early infant growth, reports research published this week in *PLOS Computational Biology*. The findings support the assertion that the early development of "microbiota" – the body's microbial ecosystem - in an infant can influence growth and thereby the likelihood of obesity.

The sterile gut of a new-born baby is quickly populated by a variety of different [microbes](#). This study identified connections between different bacteria and both expected and reduced infant growth rates.

The study, set up at the Norwegian Institute of Public Health, by Principal Investigator Merete Eggesbo took data from infants when they were 4, 10, 30 and 120 days old. By looking at faecal samples from 218 babies, the [statisticians](#) Richard White and Shyamal Peddada developed a method aimed to identify the points and periods in time where the detection of specific bacterial groups was associated with an infant's development.

Their study showed that the detection of *Bacteroides* species at day 30 in males was significantly associated with reduced growth. In contrast the presence of *E. coli* species from four to 30 days after birth was observed to correspond with expected growth in both male and female infants.

The authors mapped part of infant gut [microbiota](#) using broad and unspecific probes only, thus the observed associations may be markers

for other alterations in the gut microbiota composition. It is also possible that other factors early in life could give rise to such associations and the study may not have been large enough to adequately control for this. However, they believe their method can prove a useful tool for studying this intriguing topic further.

The authors comment: "We have created a new way of looking at the development of gut microbiota over time and relating this development to [health outcomes](#). This is useful to the scientific community as it is difficult to characterise, in a meaningful way, how the gut develops over time. After applying our new method, we found an indication that the composition of early life gut microbiota may be associated with how fast or slow babies grow in early life although there is also the possibility that factors early in life affect both gut microbiota and how fast the baby grows"

Knowledge of how the optimal composition of gut microbiota develops over time is a prerequisite for any successful manipulation of gut microbiota.

More information: White RA, Bjørnholt JV, Baird DD, Midtvedt T, Harris JR, et al. (2013) Novel Developmental Analyses Identify Longitudinal Patterns of Early Gut Microbiota that Affect Infant Growth. PLoS Comput Biol 9(5): e1003042.
[doi:10.1371/journal.pcbi.1003042](https://doi.org/10.1371/journal.pcbi.1003042)

Provided by Public Library of Science

Citation: Early infant growth rate linked to composition of gut microbiota (2013, May 9)
retrieved 17 April 2024 from
<https://phys.org/news/2013-05-early-infant-growth-linked-composition.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.