

Early childhood antibiotics may change gut microbes and lead to adolescent prediabetes

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Young children who take antibiotics may disrupt their gut's microbial ecosystem and be more likely to develop prediabetes in adolescence, new research from Greece reports. The study results will be presented in a poster Sunday, April 3, at ENDO 2016, the annual meeting of the Endocrine Society, in Boston.

"Increased consumption of [antibiotics](#) up to the age of 3 seems to decrease beneficial gut microbes and alter nutrient absorption and metabolism. This may lead to prediabetes, an early high-risk stage of Type 2 diabetes mellitus," said lead study investigator and author Charikleia Stefanaki, MD, MSc, Fellow and Research Associate in Pediatric Endocrinology, at Athens University Medical School in Athens, Greece.

"Antibiotics should be administered only when really indicated," Stefanaki said. "Gut microbes are a delicate 'organ' frequently neglected by the medical community that produces vitamins, hormones and micronutrients, interacts with the gut's nervous system, and influences the gut's immune response."

To investigate the relationship between the [gut microbiome](#) and prediabetes in adolescents, Stefanaki and her colleagues examined the differences in intestinal ecology in male and female adolescents between 12 and 17 years of age.

The researchers analyzed the fecal samples of 10 prediabetic adolescents

and 14 healthy controls. The prediabetic study participants reported having taken antibiotics over three times a year by the time they were 3 years old. They also had fewer Colony Forming Units of Ruminococcus species per gram of stool.

The healthy control group was 8.5 times less likely to have taken antibiotics by the age of 3, and 1.75 times more likely to have a positive family history of autoimmune diseases.

Ruminococcus species nourishes the [gut](#)'s beneficial bacteria. Its depletion leads to unfavorable changes in the [gut flora](#) and may lead to adolescent prediabetes.

The authors suggest that prebiotics - non-digestible fibers that nourish beneficial microbes - and probiotics - living beneficial microorganisms—may help restore proper balance in [gut bacteria](#) and help prevent prediabetes, and its progression to diabetes.

GENOVA Diagnostics, Inc. provided the stool test kits for this study.

Provided by The Endocrine Society

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