

## Antibiotic Use in Infancy and Odds of Being Overweight or Obese at Age 5: Weighing the Evidence

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There have been a number of studies noting a small but increased association between antibiotic usage in infancy and toddlerhood and an increased likelihood of a child becoming overweight or obese as they grow older.

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There have been a number of studies noting a small but increased association between antibiotic usage in infancy and toddlerhood and an increased likelihood of a child becoming overweight or obese as they grow older. This might be due to alterations in the microbiome. Often these studies have small numbers or not control for confounders, raising questions about whether this relationship is real. This month, Block et al. ([10.1542/peds.2018-0290](#)) offer a study involving 35 institutions and 362,550 infants who had height and weight measured on the

same day in their first year of life and then subsequently as they got older up to age 5 years, looking at the association between antibiotic usage and the odds of being overweight or obese while controlling for numerous confounders. They looked at children with and without a complex chronic condition and found that the odds of being overweight or obese was increased by 5% in their adjusted models among children who received antibiotics in the first two years of life. The authors also found that the more antibiotics used, the greater the odds for the association (but even with 4+ courses of antibiotics in the first two years of life, the odds ratio only increased to 1.10).

So, what does this mean? Is this a causal relationship that would caution us to be even better stewards of antibiotic? To answer these questions, we asked Drs. Antti Saari and Ulla Sankilampi, experts on this topic from Kuopio University in Finland to share their thoughts in an accompanying commentary ([10.1542/peds.2018-2692](#)). The authors focus their comments on whether this association might be causal by looking at what is needed to prove causality, including the strength of the association, its consistency, specificity, temporality, dose dependence, plausibility and understanding of biological mechanisms in terms of the Block et al. study and others. Their analysis of these factors does suggest causality is strongly possible, but the clinical significance of this causality is very small, given the small increases in the odds ratios found in this study and others. The study and commentary provide much more than just a light-weight

look at this fascinating association and a possible contributor to weight gain in children—so check both out and decide just how heavily or seriously you should take the findings regarding counseling your families of children who are overweight or obese as to whether or not to opt for antibiotics.

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