

Antibiotic use in infants before six months associated with being overweight in childhood

August 21 2012

Treating very young infants with antibiotics may predispose them to being overweight in childhood, according to a study of more than 10,000 children by researchers at the NYU School of Medicine and the NYU Wagner School of Public Service and published in the online August 21, 2012, issue of the *International Journal of Obesity*.

The study found that on average, children exposed to [antibiotics](#) from birth to 5 months of age weighed more for their height than children who weren't exposed. Between the ages of 10 to 20 months, this translated into small increases in [body mass](#) percentile, based on models that incorporated the potential impacts of diet, physical activity, and parental obesity. By 38 months of age, exposed children had a 22% greater likelihood of being overweight. However, the timing of exposure mattered: children exposed from 6 months to 14 months did not have significantly higher body mass than children who did not receive antibiotics in that same time period.

The NYU School of Medicine researchers, led by Leonardo Trasande, MD, MPP, associate professor of pediatrics and [environmental medicine](#), and Jan Blustein, MD, PhD, professor of [population health](#) and medicine, caution that the study does not prove that antibiotics in early life causes young children to be overweight. It only shows that a correlation exists. Further studies will need to be conducted to explore the issue of a direct causal link.

"We typically consider obesity an epidemic grounded in unhealthy diet and exercise, yet increasingly studies suggest it's more complicated," said Dr. Trasande. "[Microbes](#) in our [intestines](#) may play critical roles in how we absorb calories, and exposure to antibiotics, especially early in life, may kill off healthy bacteria that influence how we absorb nutrients into our bodies, and would otherwise keep us lean."

In recent years there has been a growing concern about the [overuse of antibiotics](#), especially in children. Preliminary studies of the microbiome, the trillions of microbial cells inhabiting our bodies and outnumber our own cells 10 to 1, implicate obesity, inflammatory bowel disease, asthma, and other conditions with changes in the microbiome. It is still a field in its infancy, however, and no one has yet proved that altering the composition of bacteria in the body leads to disease.

This is the first time that a study has analyzed the association between the use of antibiotics and body mass starting in infancy. One previous study had identified a link between antibiotic use in early infancy and obesity at seven years of age, but was unable to examine potential impacts of antibiotic use later in infancy on body weight in childhood.

The NYU School of Medicine researchers evaluated the use of antibiotics among 11,532 children born in Avon, United Kingdom, during 1991 and 1992. The children are part of the Avon Longitudinal Study of Parents and Children (ALSPAC), a long-term study that provides detailed data on the health and development of these children.

The NYU School of Medicine researchers analyzed health information on these children during three periods: from birth to 5 months of age; 6 months to 14 months; and, finally from 15 to 23 months. They also examined body mass or weight at five different points of time—6 weeks, 10 months, 20 months, 38 months, and 7 years of age.

Antibiotic use only appeared to have an effect in very young infants (those given antibiotics from birth to 5 months of age.) Although children exposed to antibiotics at 15 to 23 months had somewhat greater BMI (Body Mass Indices) for their age and gender by the age of 7, there was no significant increase in their being overweight or obese.

"For many years now, farmers have known that antibiotics are great at producing heavier cows for market," said Dr. Blustein. "While we need more research to confirm our findings, this carefully conducted study suggests that antibiotics influence weight gain in humans, and especially [children](#) too."

In addition to Dr. Trasande, who is also associate professor of health policy, NYU Wagner School of Public Service, and Dr. Blustein, who is also a professor of health policy at the NYU Wagner School of Public Service, the authors of the study are: Mengling Liu, PhD, associate professor of environmental medicine, NYU School of Medicine; Elise Corwin, BA, NYU Wagner School of Public Service; Laura M. Cox, BA, Department of Microbiology, NYU School of Medicine; Martin J. Blaser, MD, the Frederick H. King Professor of Internal Medicine and chair Department of Medicine, and professor of microbiology, NYU School of Medicine.

Provided by New York University School of Medicine

Citation: Antibiotic use in infants before six months associated with being overweight in childhood (2012, August 21) retrieved 5 May 2024 from <https://medicalxpress.com/news/2012-08-antibiotic-infants-months-overweight-childhood.html>

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