

# Use of acetaminophen in pregnancy associated with increased asthma symptoms in children

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Children who were exposed to acetaminophen prenatally were more likely to have asthma symptoms at age five in a study of 300 African-American and Dominican Republic children living in New York City. Building on prior research showing an association between both prenatal and postnatal acetaminophen and asthma, this is the first study to demonstrate a direct link between asthma and an ability to detoxify foreign substances in the body. The findings were published this week in the journal *Thorax*.

The study, conducted by the Columbia Center for Children's Environmental Health at Columbia University's Mailman School of Public Health, found that the relationship was stronger in children with a variant of a gene, glutathione S transferase, involved in [detoxification](#) of foreign substances. The variant is common among African-American and Hispanic populations. The results suggest that less efficient detoxification is a mechanism in the association between acetaminophen and [asthma](#).

The researchers assessed the use of analgesics during [pregnancy](#) and found that 34 percent of mothers reported acetaminophen use during pregnancy, and 27 percent of children had wheeze, an asthma-related symptom. The children whose mothers had taken acetaminophen were more likely to wheeze, visit the [emergency room](#) for respiratory problems, and develop allergy symptoms, compared to those children

whose mothers did not take acetaminophen. The risk increased with increasing number of days of prenatal acetaminophen use. The children in this study live in neighborhoods of New York City that have been the hardest hit by the asthma epidemic: Northern Manhattan and the South Bronx.

Acetaminophen use among children in the U.S. has increased substantially since the early 1980s and has become increasingly common among women during pregnancy so that most women in the U.S. take acetaminophen during pregnancy. This increase coincided with a doubling of the prevalence of asthma among children in the country between 1980 and 1995.

"These findings might provide an explanation for some of the increased asthma risk in minority communities and suggest caution in the use of acetaminophen in pregnancy," says Matthew S. Perzanowski, PhD, assistant professor of Environmental Health Sciences at the Mailman School of Public Health.

Reasons for prenatal acetaminophen use vary, but in this study population the observed associations with headaches suggest pain management as likely; however, other host factors that caused mothers to take acetaminophen and also cause asthma may explain their association. While infection is one such potential confounder, the Mailman School researchers found no association between the reported use of antibiotics and acetaminophen, and adjustment for antibiotic use during pregnancy did not affect the results.

According to the researchers, the prevalence of current wheeze diminished as the children aged, from 40 percent at age one year to 25 percent, 17 percent and 27 percent at ages two, three, and five, respectively. However, the association between prenatal acetaminophen exposure and current wheeze strengthened as the children aged.

The Columbia Center for Children's Environmental Health study adjusted relative risks for sex, race/ethnicity, birth order, maternal asthma, maternal hardship, exposure to environmental tobacco smoke, antibiotic use and postnatal acetaminophen use.

In a similar study conducted in the UK, the frequency of acetaminophen use during pregnancy and the magnitude of association in the UK study were similar to that in New York City.

Provided by Columbia University's Mailman School of Public Health

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