



Living Near Freeways Hurts Kids' Lungs

Exposure to emissions could lead to respiratory problems later, experts say

By **Steven Reinberg**
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FRIDAY, Jan. 26 (HealthDay News) -- Children growing up alongside freeways risk having their lung development impaired, which can increase the likelihood of serious respiratory diseases later in life, researchers report.

Other studies have shown that children living next to highways are more likely to develop respiratory problems, such as asthma. But this is the first study to show that long exposure to car and truck exhaust actually affects the growth of the lungs, and hence their capacity.

The report is published in the Jan. 26 online issue of *The Lancet*.

"Exposure from tailpipe emissions from motor vehicles potentially carries chronic health risks to children's lung development," said lead researcher W. James Gauderman, an assistant professor in the Department of Preventive Medicine at the University of Southern California, Los Angeles. "We found that kids who live closer to freeways had significantly less lung capacity, compared with kids who lived further from freeways."

In the study, Gauderman and his colleagues followed 3,677 children for eight years, tracking their lung development. The children were 10 at the start of the study, and came from 12 southern California communities. The air quality differed in each community.

The researchers found that lung growth in children who lived within 500 meters of a freeway (about a quarter of a mile) was significantly less than children who lived 1,500 meters or more from a freeway.

Gauderman's group also found that exposure to freeways and regional air pollution had negative and independent effects on the growth of lung function. In addition, there was a significant drop in percentage of expected lung function among 18-year-olds who lived within 500 meters of a freeway.

Gauderman thinks that these effects on lung development are serious. "Lung capacity is something that once a child is done growing, that amount of lung capacity they have is carried with them throughout their adult life," he explained.

Lung capacity is further reduced as people age, Gauderman said. "Reduced lung capacity is a known risk factor for cardiovascular disease and respiratory diseases, such as emphysema," he added.

"What we worry most about are kids who have compromised lung function to start out with," Gauderman said. "When they are older, they will have a significantly increased risk for respiratory diseases."

One expert thinks that the problem is real, but the solution is elusive, and only changes in neighborhoods or automobile emissions seem likely to have an impact.

"Prior studies and common sense both suggest that breathing in a great deal of automobile exhaust cannot be good for the healthy development of children's lungs," said Dr. David L. Katz, an associate professor of public health and director of the Prevention Research Center at Yale University School of Medicine.

These data show a clear and clinically important association between the proximity of a child's home to a major freeway and deficits in lung function by age 18, Katz said. "The deficits observed in the force and volume of each breath suggests increased risk of asthma and bronchitis, as well as a decreased capacity for physical exertion," he said.

What these investigators cannot do is fix the problem, Katz said. "Can we redesign urban neighborhoods so that no home or school is near highway traffic? Can we reduce the volume and/or composition of car exhaust so that highways no longer represent threats to the lungs of growing children?" he asked.

More information

The American Academy of Family Physicians can tell you more about [outdoor air pollution](#).

SOURCES: W. James Gauderman, Ph.D., assistant professor, Department of Preventive Medicine, University of Southern California, Los Angeles; David L. Katz, M.D., M.P.H., associate professor, public health, and director, Prevention Research Center, Yale University School of Medicine, New Haven, Conn.; Jan. 26, 2007, *The Lancet* online

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