

Pollution shrinks fetuses, researchers say

Jan. 8, 2008

Courtesy Queensland University of Technology and [World Science](#) staff

Exposure to air pollution significantly reduces fetus size during pregnancy—which bodes ill for the affected children’s lifelong health, scientists are reporting.

Adrian Barnett of Australia’s Queensland University of Technology and colleagues compared fetus sizes as shown in more than 15,000 ultrasound scans, to air pollution levels in the area of Brisbane, Australia.

“Mothers with a higher exposure to air pollution had fetuses that were, on average, smaller” as revealed by three key measures, Barnett said.

“While we need to get more data from individual mothers before we can be more certain about the effects of air pollution on fetal development, we would recommend that where possible pregnant women reduce their exposure to air pollution.” Avoiding major roads when possible may help, he said.

The 10-year study, conducted with with Craig Hansen of the U.S. Environmental Protection Agency, examined fetuses in mid-pregnancy and appeared in the Dec. 17 online issue of the research journal *Environmental Health Perspectives*.

“To our knowledge this is the first study of its kind as it uses ultrasound measurement as a direct estimate of growth, rather than using birth weight as a delayed measure of growth,” Barnett said. “When analysing scans from women at different distances to monitoring sites, we found that there was a negative relationship between pollutants such as sulphur dioxide found in diesel emissions, and ultrasound measurement.

Fetus size is important, Barnett said, because research shows that bigger babies are healthier in childhood and adulthood. “Birth weight is a major predictor of later health; for example, bigger babies have been shown to have higher IQs in childhood and lower risk of cardiovascular disease” later.

The results may be particularly surprising in light of the fact that Brisbane is seen as a relatively clean city, he added. “Some people may think there is no air pollution in Brisbane because the air looks so clean,” he noted. But “you have to remember that most air pollutants are not visible to the naked eye, people do have a very outdoor lifestyle, and homes are designed to maximise airflow. So although the actual levels of pollution are low our exposure to whatever is out there is relatively high. This is particularly a problem for people who live near major roads.” Motor vehicles cause most of the air pollution in Brisbane, he added, as in many other cities.



Image: Major roadways can be sources of air pollution. (Image courtesy NSF)