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Air pollution hits cyclists hard

Bike paths and busy arterial roads are a volatile mix, according to new research from the University of British Columbia.

Cycling on busy roads leads to higher levels of airborne volatile organic compounds (VOCs) in the bloodstream than cycling on side streets, according to a new study by researchers at UBC.

In the first study on the effect of traffic levels on cyclists' pollution intake, researchers showed that sharing the road with cars has a dramatic impact on the amount of toxicants absorbed by riders.

Exposure to air-borne volatile organic compounds (VOCs) was 100- to 200 per cent higher on high-traffic arterial routes and roads through industrial areas, which resulted in blood levels of toxicants 40- to 100 per cent higher than normal in cyclists after riding just six to nine kilometres, the researchers found. No difference in toxicant levels was detected in cyclists that used low-traffic streets.

Vancouver has 289 kilometres of bicycle infrastructure, about 60 per cent of it on side streets parallel to the city's major arterial roads. Traffic calming measures have been installed on many of the side-street routes to discourage automobile traffic.

A team, led by UBC engineering professor Alex Bigazzi, took breath samples from cyclists before and after riding selected routes through Portland, Oregon, during morning rush hour on nine days over six months. (The data was collected while Bigazzi was a student at Portland State University.)

"I was pretty surprised," said Bigazzi. "This is a fairly short exposure and these aren't particularly high concentrations (of pollutants). The air quality in Portland is comparable to Vancouver."

Breath samples were analyzed for 75 target compounds, common pollutants found in automobile exhaust, often the result of unburned or partly burned gasoline. Volatile organic compounds are associated with cancer and neurological disease.

"We know pollutant concentrations are lower on low-traffic routes, but we didn't know until now whether the route you pick had an impact on the levels of these toxicants in the body," said Bigazzi, a cyclist who studies traffic-related air pollution. The duration of the rides in the study was between 22 and 38 minutes, suggesting a relatively short commute can result in "significant" uptake of pollutants.

While the health benefits of cycling outweigh the hazard represented by pollution — at least in North American cities — the study has obvious implications for urban design and bike route planning, he said.

Routes for pedestrians and cyclists should be separate from heavy automobile traffic to ensure people get a health benefit from exercise, he said.

What I find interesting is that cyclists, breathing much harder than motorists will, for the same time spent in similarly polluted air, absorb much more pollution from the air. Again - most of our problems are due to our solutions! - cjk