

For Immediate Release



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AUB Research about Cleaner air in traffic: **close or open the car window?**

I cover my nose and try not to breathe when I walk behind a bus or truck; the air can be awful. I know that exhaust comes out of the rear of a car; common sense tells me that it does not pollute the air that I breathe while I am in a vehicle...that air trails off behind. Professor Mutassem El-Fadel says “guess again!”

El-Fadel and other colleagues at the American University of Beirut (AUB) have been looking at “self-pollution,” your own car’s exhaust infiltrating the compartment while you drive. In a recent article in Transportation Research, engineering professors Mutassem El-Fadel, Alan Shihadeh, and Ibrahim Alameddine, working with former students G. Harik, and M. Hatzopoulou, report that the air inside your vehicle may be worse than the air outside.

They used an innovative hybrid system that simultaneously measures both internal and external air quality. In the comparisons, they found that self-pollution accounts for approximately 15% of carbon monoxide and 30% of the particulate matter in the compartment of a vehicle. Over years of chronic exposure at low levels, these pollutants cause heart and pulmonary disease, among other health effects.

Their experiments took place in a pristine area of Mt. Lebanon. Measurements were taken under numerous conditions with car engines idling, driving at different speeds, with the window and vents open and closed, and with the air-conditioning on fresh and recirculating air.

Prof. El-Fadel said making the right decision to improve the quality of air inside your car sometimes may not be what you think. “Closing the windows and recirculating the air may actually increase your pollution exposure. In the future vehicles may include sensors to determine the changing quality of the air you are breathing and the best action to take in each situation.” Unfortunately there is no simple answer that applies to all vehicles under all driving

conditions, but understanding the problem is an important step that can lead to alternative vehicle ventilation designs.

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Note to Editors

About AUB

Founded in 1866, the American University of Beirut bases its educational philosophy, standards, and practices on the American liberal arts model of higher education. A teaching-centered research university, AUB has more than 700 full-time faculty members and a student body of about 8,500 students. AUB currently offers more than 130 programs leading to bachelor's, master's, MD, and PhD degrees. It provides medical education and training to students from throughout the region at its Medical Center that includes a full-service 420-bed hospital.

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