

With increasing obesity, fuel consumption becomes weighty matter

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(PhysOrg.com) -- Excess fuel consumption caused by excess driver and passenger weight has increased in the past two years, with no end in sight.

In a widely publicized study in fall 2006, University of Illinois computer science professor Sheldon H. Jacobson and doctoral student Laura McLay estimated the amount of vehicle fuel consumed as a result of overweight and obese passengers.

Now, in a new study by Jacobson and doctoral student Douglas King, current estimates of weight-based fuel consumption were calculated and compared with those reported in 2006. The results are not good news.

"Growing overweight and obesity rates in the United States continue to increase fuel consumption by adding extra passenger weight to vehicles," said Jacobson, who also is the director of the university's simulation and optimization laboratory. "More than 1 billion gallons of fuel consumed each year can be attributed to this excess weight."

In 2006, Jacobson and McLay found that cars and light trucks consumed up to 938 million additional gallons of fuel each year as a result of average weight gain since the 1960s. In the new study, Jacobson and King found the amount of additional fuel had jumped by nearly 200 million gallons, to 1.137 billion gallons a year, an increase of about 21 percent.

Gathered by U.S. government agencies, the data used in the study described the use and performance of noncommercial passenger vehicles (cars and light trucks) in 2005, the age and gender of drivers and passengers, and the changes in weight of Americans.

"One question that came up regarding our previous study was that while Americans have

grown heavier, they have also grown taller. So, shouldn't we be taking that into account?" Jacobson said.

"It turns out that Americans are approximately an inch taller now than they were in the 1960s. To address this, our new study looked at the distribution of body mass index, instead of the distribution of weight."

Body mass index is a measurement calculated by dividing an individual's weight (in kilograms) by the square of the person's height (in meters).

According to the latest data available, nearly 66 percent of Americans are overweight with a body mass index exceeding 25; nearly 32 percent are considered obese with a body mass index exceeding 30.

"The trend in this country is that we are getting heavier, and our vehicles are consuming more fuel as a result," Jacobson said. "The growing obesity problem is a major symptom of our nation's addiction to oil. We prefer to ride when we should walk."

The obesity problem and the fuel-dependency problem are so related, "we cannot hope to tackle one without also tackling the other," Jacobson said. And, as he and King point out in their study, the problems are not limited to the United States.

"A recent surge in overweight and obesity rates in China correlates with an increased level of automobile ownership," Jacobson said, "indicating that the issues being faced by the U.S. will become international issues as nations become more affluent."

The study and findings are in a paper accepted for publication in the journal *Transportation Research Part D (Transport and Environment)*, and posted on its Web site.

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Provided by University of Illinois at Urbana-Champaign

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