

Long commutes may be hazardous to health

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As populations move even further away from urban centers, more people spend longer hours behind the wheel on their way to and from work. While sedentary behavior is known to have adverse effects on cardiovascular and metabolic health, the impact of long commutes by automobile are less understood. A new study has found that greater commuting distances are associated with decreased cardiorespiratory fitness (CRF), increased weight, and other indicators of metabolic risk. The results are published in the June issue of *American Journal of Preventive Medicine*.

"This study yields new information about biological outcomes and commuting distance, an understudied contributor to [sedentary behavior](#) that is prevalent among employed adults," explains lead investigator Christine M. Hoehner, PhD, MSPH, Washington University in St. Louis, Missouri. "It provides important evidence about potential mediators in the relationship between time spent driving and [cardiovascular mortality](#)."

Researchers studied 4,297 residents who lived and worked in eleven counties in the Dallas-Fort Worth or Austin, Texas metropolitan areas. Commuting distances were calculated with ArcGIS9 software and measured the shortest distance from home to work along the road network. CRF, [body mass index](#) (BMI), and metabolic risk variables including waist circumference, fasting [triglycerides](#), fasting [plasma glucose](#), high-density lipoprotein (HDL) cholesterol, and blood pressure, were measured. Self-reported participation in moderate to [vigorous physical activity](#) over the previous three months was also assessed.

The study found that people who drove longer distances to work reported less frequent participation in moderate to vigorous physical activity and decreased CRF, and had greater BMI, waist circumference, and blood pressure. The association remained when physical activity and CRF were adjusted for, although to a lesser degree for BMI and waist circumference. Those who commuted more than 15 miles to work were less likely to meet recommendations for moderate to vigorous physical activity, and had a higher likelihood of obesity. Commuting distances greater than 10 miles were associated with high blood pressure.

Dr. Hoehner explains that longer commutes may replace participation in physical activity, given the association between commute time and physical activity and CRF, and the lesser association with adiposity after adjustment for physical activity. "At the same time, both BMI and [waist circumference](#) were associated with commuting distance even after adjustment of physical activity and CRF, suggesting that a longer commuting distance may lead to a reduction in overall energy expenditure," she notes.

Association of commuting distance with the other metabolic risk indicators was largely weak or insignificant, with the exception of blood pressure. Multiple mechanisms could be contributing to this relationship. "The Dallas-Fort Worth region is ranked among the top five most congested metropolitan areas, and those with longer commutes may be more likely to be exposed to heavy traffic resulting in higher stress levels and more time sitting," says Dr. Hoehner.

Commuting by automobile represents only one of many forms of sedentary behavior, and this study did not examine other important contributors such as occupational sitting and TV viewing. Dr. Hoehner notes that future studies are needed to assess sedentary time across multiple behaviors to identify the independent effects of commuting on health.

More information: “Commuting Distance, Cardiorespiratory Fitness, and Metabolic Risk,” by C.M. Hoehner, C.E. Barlow, P. Allen, M. Schootman ([DOI: 10.1016/j.amepre.2012.02.020](https://doi.org/10.1016/j.amepre.2012.02.020)). It appears in the *American Journal of Preventive Medicine*, Volume 42, Issue 6 (June 2012)

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