# Measuring the Health Effects of SPRAWL

## A National Analysis of Physical Activity, Obesity and Chronic Disease


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# Executive Summary

Health experts agree: most Americans are too sedentary and weigh too much. Obesity has reached epidemic levels, and diseases associated with inactivity are also on the rise. What is creating this public health crisis? Much of the focus to date has been on whether Americans are eating too much fattening food. But researchers are starting to pay attention to the other half of the weight-gain equation: Americans' low levels of physical activity. A pressing question for public health officials is whether the design of our communities makes it more difficult for people to get physical activity and maintain a healthy weight.

This report presents the first national study to show a clear association between the type of place people live and their activity levels, weight, and health. The study, *Relationship Between Urban Sprawl and Physical Activity, Obesity, and Morbidity,* found that people living in counties marked by sprawling development are likely to walk less and weigh more than people who live in less sprawling counties. In addition, people in more sprawling counties are more likely to suffer from hypertension (high blood pressure). These results hold true after controlling for factors such as age, education, gender, and race and ethnicity.

Researchers measured the degree of sprawl with a county 'sprawl index' that used data available from the US Census Bureau and other federal sources to quantify development patterns in 448 counties in urban areas across the United States. Counties with a higher degree of sprawl received a lower numerical value on the index, and county sprawl index scores range from 63 for the most sprawling county to 352 for the least sprawling county. Sprawling counties are spread-out areas where homes are far from any other destination, and often the only route between the two may be on a

The findings presented here are from the article, *Relationship Between Urban Sprawl and Physical Activity, Obesity and Morbidity,* by Reid Ewing, Tom Schmid, Richard Killingsworth, Amy Zlot, and Stephen Raudenbush, published in the September 2003 issue of the *American Journal of Health Promotion.*

This report is intended to make this important piece of research more accessible to the general public. In addition to presenting research findings, this report summarizes recent research done by others on the links between the way we've built our communities, physical activity, and health. It also includes recommendations for change and resources for those interested in further exploration of this topic.

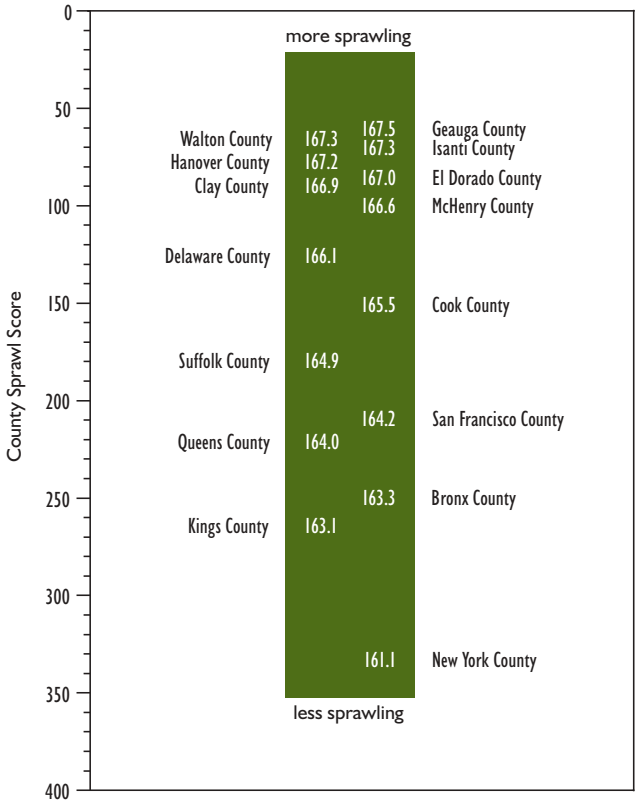
busy high-speed arterial road that is unpleasant or even unsafe for biking or walking. People who live in these areas may find that driving is the most convenient way to get everything done, and they are less likely to have easy opportunities to walk, bicycle, or take transit as part of their daily routine.

Indeed, previous research has shown that people living in sprawling areas drive more, while people living in compact communities are more likely to walk. Medical research has shown that walking and similar moderate physical activity is important to maintaining healthy weight and bestows many other health benefits. What is groundbreaking about this study is that it is the first national study to establish a direct association between the form of the community and the health of the people who live there.

## Analysis shows sprawl is linked to health

The study compared the county sprawl index to the health characteristics of more than 200,000 individuals living in the 448 counties studied, using a large national health survey, the Behavioral Risk Factor Surveillance System (BRFSS), which is maintained by the Centers for Disease Control and Prevention (CDC).

**FIGURE 1. Sprawl and Weight**
Expected Weight for a 5'7" Adult (lbs.)

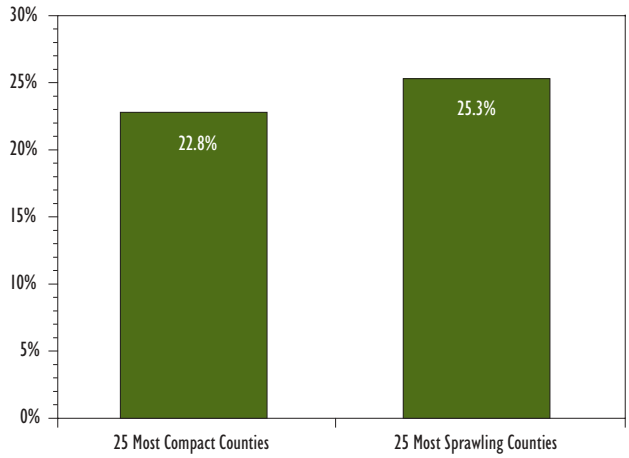



The results show that people in more sprawling counties are likely to have a higher body mass index (BMI), a standard measure of weight-to-height that is used to determine if people are overweight or obese. A 50-point increase in the degree of sprawl on the county sprawl index was associated with a weight gain of just over one pound for the average person. Looking at the extremes, the people living in the most sprawling areas are likely to weigh six pounds more than people in the most compact county. Expected differences in weight for an average person living in different counties are shown in Figure 1, left. Obesity, defined as a BMI of 30 or higher, followed a similar pattern. The odds that a county resident will be obese rises ten percent with every 50-point increase in the degree of sprawl on the county sprawl index.

The study also found a direct relationship between sprawl and chronic disease. The odds of having hypertension, or high blood pressure, are six percent higher for every 50-point increase in the degree of sprawl. The 25 most sprawling counties had average

hypertension rates of 25 per 100 while the 25 least sprawling had hypertension rates of 23 per 100. The researchers did not find any statistically significant association between community design and diabetes or cardiovascular disease. While all three chronic conditions are associated with being inactive and overweight, many other factors including heredity may moderate the relationship between sprawl and chronic diseases.

**FIGURE 2. Sprawl and Blood Pressure**
Percent of Adult Population with Hypertension




Source: BRFSS Hypertension rates, weighted by county (1998-2000).

People in sprawling areas walk less for exercise, which may help explain the higher obesity levels. But routine daily activity, such as walking for errands, may have a bigger role. When the researchers controlled for the amount of walking for exercise that people reported, they found that people in more sprawling counties weigh more whether or not they walk for exercise. This suggests that people in sprawling areas may be missing out on significant health benefits that are available simply by walking, biking, climbing stairs, and getting physical activity as part of everyday life.

These results point toward the need to continue investigating how our communities may be affecting our health. Additional studies are needed to better understand the relationship between sprawling development and the risk of being overweight, and to more precisely measure physical activity.

*People living in counties marked by sprawling development are likely to walk less, weigh more, and are more likely to have high blood pressure.*

## Creating Healthy Communities

We know that people would like to have more opportunities to walk and bicycle: recent national polls found that 55 percent of Americans would like to walk more instead of driving, and 52 percent would like to bicycle more. Leaders looking to reshape their communities to make it easier to walk and bicycle have many options. They can invest in improved facilities for biking and walking, install traffic calming measures to slow down cars, or create Safe Routes to School programs that focus on helping kids walk and bike to school. They also can create more walkable communities by focusing development around transit stops, retrofitting sprawling neighborhoods, and

revitalizing older neighborhoods that are already walkable. When paired with programs that educate people about the benefits of walking, these changes can help increase physical activity.

Addressing these issues is essential both for personal health and for the long-term health of our communities. Physical inactivity and being overweight are factors in over 200,000 premature deaths each year. The director of the CDC recently said obesity might soon overtake tobacco as the nation's number-one health threat. Meanwhile, rising health care costs are threatening state budgets. Getting decision makers to consider how the billions spent on transportation and development can make communities more walkable and bikeable is one avenue to improving the health and quality of life of millions of Americans.

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Oregon Department of Transportation, Pedestrian & Bicycle Program

**Smart Growth America** is a coalition of nearly 100 advocacy organizations that have a stake in how metropolitan expansion affects our environment, quality of life and economic sustainability. Our diverse coalition partners include national, state and local groups working on behalf of the environment, historic preservation, social equity, land conservation, neighborhood redevelopment, farmland protection, labor, town planning, and public health. SGA'a website provides introductory and in-depth information on all aspects of smart growth. Visit **www.smartgrowthamerica.org**

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