

How Neighborhoods Can Reduce the Risk of Obesity

Obesity is the most serious public health problem confronting America today. Obese and overweight Americans face elevated risks of chronic illness and disability. As the obesity epidemic worsens, researchers are zeroing in on environmental factors that may contribute to the problem or, conversely, help to prevent it. It is increasingly clear that neighborhoods play an important role in stimulating exercise and reducing the risk of obesity. To shed more light on this connection, a series of RAND studies has examined how neighborhood characteristics affect physical activity.

Proximity to Parks Matters

Neighborhood parks play an important role in promoting exercise. In the first systematic evaluation of neighborhood use of public parks, a RAND team led by researcher Deborah Cohen assessed activities in 12 Los Angeles public parks.

Key findings:

- Neighborhood parks promote exercise, especially among residents who live within a mile of a park.
- School playgrounds are an underused resource for weekend exercise.
- Having four or more different types of businesses in a neighborhood can increase the number of walking trips among residents.
- In neighborhoods where residents are willing to help each other, children are less likely to be overweight.

The researchers surveyed park users as well as a sample of the local population. They found that living near a park was associated with engaging

This Highlight summarizes RAND Health research reported in the following publications:

Boer, Rob, Yuhui Zheng, Adrian Overton, Gregory Kirk Ridgeway, and Deborah Cohen, "Neighborhood Design and Walking Trips in Ten U.S. Metropolitan Areas," *American Journal of Preventive Medicine*, Vol. 32, No. 4, April 2007, pp. 298–304.

Cohen, Deborah, Amber Sehgal, Stephanie Williamson, Roland Sturm, Thomas L. McKenzie, Rosa Lara, and Nicole Lurie, *Park Use and Physical Activity in a Sample of Public Parks in the City of Los Angeles*, Santa Monica, Calif.: RAND Corporation, TR-357-HLTH, 2006, 103 pp., available at http://www.rand.org/pubs/technical_reports/TR357/

Cohen, Deborah, Brian K. Finch, Aimee Bower, and Narayan Sastry, "Collective Efficacy and Obesity: The Potential Influence of Social Factors on Health," *Social Science & Medicine*, Vol. 62, No. 3, February 2006, pp. 769–778.

Cohen, Deborah, J. Scott Ashwood, Molly M. Scott, Adrian Overton, Kelly R. Evenson, Lisa K. Staten, Dwayne Porter, Thomas L. McKenzie, and Diane Catellier, "Public Parks and Physical Activity Among Adolescent Girls," *Pediatrics*, Vol. 118, No. 5, November 2006, pp. e1381–e1389.

Cohen, Deborah, Thomas L. McKenzie, Amber Sehgal, Stephanie Williamson, Daniela Golinelli, and Nicole Lurie, "Contribution of Public Parks to Physical Activity," *American Journal of Public Health*, Vol. 97, No. 3, March 1, 2007, pp. 509–514.

Scott, Molly M., Deborah A. Cohen, Kelly R. Evenson, John Elder, Diane Catellier, J. Scott Ashwood, and Adrian Overton, "Weekend Schoolyard Accessibility, Physical Activity, and Obesity: The Trial of Activity in Adolescent Girls (TAAG) Study," *Preventive Medicine*, Vol. 44, No. 5, May 2007, pp. 398–403.

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Corporate Headquarters
 1776 Main Street
 P.O. Box 2138
 Santa Monica, California
 90407-2138
 TEL 310.393.0411
 FAX 310.393.4818

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in more exercise. This may not be because people were exercising at the park—in fact, the most frequent activity observed in the park was sitting. However, more than three-quarters of users lived a mile or less from the park (see Figure 1), and most walked to the park from their homes, thus getting exercise by walking there and back. People—especially adults and seniors—were more likely to exercise at parks that had areas for moderate exercise, such as tracks, walking paths, and trails. Having a park near one’s home was more important than the size of the park itself—people were more likely to use their neighborhood park even if a larger park was just a few miles away. The researchers also noted that, in all age groups, males were much more likely than females to use neighborhood parks.

Girls pose a particular concern because their physical activity is known to decrease as they progress through adolescence, raising their risk of weight gain. A related study by Cohen and colleagues examined park use and physical activity among adolescent girls. The study examined exercise patterns among more than 1,500 sixth-grade girls in six U.S. cities. It also counted the average number of public parks within a one-mile radius of the girls’ homes. The study found that adolescent girls who live within one-half mile of a public park are more physically active than other girls. Higher levels of physical activity were seen among girls who lived near small parks, playgrounds, walking paths, and running tracks.

School Playgrounds Are an Underused Resource

School playgrounds that are accessible to children on weekends may also promote exercise. Focusing on the same sample of sixth-grade girls, researchers visited 407 school playgrounds within a half-mile radius of the homes of the

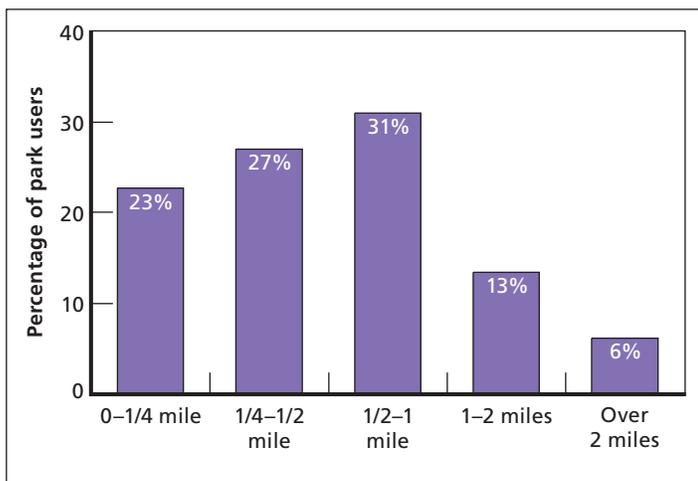
girls. Results showed that 66 percent of the schools were unlocked on weekends, although the percentage of available school facilities varied substantially among different cities (see the table). But only 57 percent of schools both were unlocked and had accessible facilities, such as playgrounds, athletic fields, basketball courts, and paved playing areas. The majority of locked and inaccessible playgrounds were in poor and minority neighborhoods.

Although the study did not find a relationship between school accessibility and increased weekend physical activity rates, the number of locked schools was associated with significantly higher body mass index for girls (body mass index is a mathematical formula representing weight relative to height that can be used to determine whether a person is overweight or underweight). The fact that girls with a higher body mass index tended to live in areas with locked schools could signal that the girls live in a more stressful, high-crime area, which would create incentives for them to remain indoors, or in a neighborhood with access to stores that sell unhealthy food. Stress itself is associated with obesity due to higher secretions of the stress hormone cortisol, which increases fat deposits.

Business Diversity and Four-Way Intersections Promote City Walking

Other neighborhood features also influence levels of physical activity. A RAND study led by Rob Boer examined the relationship between neighborhood features and walking trips in ten U.S. cities. The analysis found that business diversity was associated with walking trips. Having four or more different types of businesses in a neighborhood significantly increased the number of walking trips among residents. This is probably true because of added convenience: Residents are able to accomplish multiple routine errands in a single walking trip and thus may drive less. A greater number of four-way intersections was also associated with more walking. The effects of housing density were mixed. Neighborhood age, availability

Figure 1
Most Park Users Live Within One Mile of the Park



Percentage of Unlocked and Accessible School Playgrounds in Six U.S. Cities

City	% of Accessible School Playgrounds or Exercise Facilities on Weekends
Minneapolis	93
Columbia, S.C.	77
San Diego	74
Washington/Baltimore	54
Tucson	50
New Orleans (before Hurricane Katrina)	23

of parking, and block length were not significantly associated with walking.

Neighborhood Social Bonds Can Reduce the Risk of Obesity

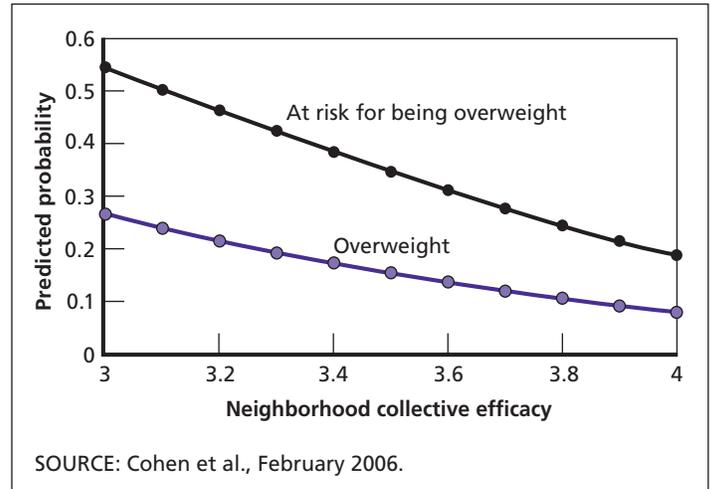
Aside from their physical configuration, neighborhoods can influence body weight and the risk of obesity in other ways. Cohen and colleagues also studied the effect of neighborhood social cohesion on the weight gain of adolescents. They found that children who lived in close-knit neighborhoods were less likely to be overweight than children who did not. Researchers analyzed responses from 3,000 households including 807 adolescents in 65 neighborhoods in the Los Angeles area. Close-knit neighborhoods were defined as those with the greatest degree of “collective efficacy,” a measurement that characterizes social cohesion. Such neighborhoods contain adults who children look up to, people willing to help their neighbors, neighbors who get along, adults who take active steps to ensure that children are safe, neighbors who share the same values, adults who will intervene if a youngster is defacing property with graffiti, and adults who will scold a child showing disrespect. In neighborhoods that lacked these features, adolescents were more likely to be overweight, even after controlling for other factors (see Figure 2). Although the analysis did not identify causes, the researchers speculated that close-knit neighborhoods might be associated with lower levels of stress and could also promote increased physical activity by making neighborhoods feel safer and more “walkable.”

Implications for Communities and Researchers

Taken collectively, these studies underscore that neighborhoods exert a powerful effect on residents’ physical activity and thus that neighborhood design should be considered a public health issue. Communities would profit by taking steps to create and maintain public facilities and spaces that are known to promote exercise. These steps can include

- factoring exercise considerations into zoning and design decisions

Figure 2
Adolescents in Neighborhoods with Greater Collective Efficacy Are Less Likely to Be Overweight



- making parks a higher priority, particularly ones with amenities such as running tracks or walking paths, which are relatively inexpensive to create
- ensuring that school playgrounds are accessible to children on weekends.

Researchers need to learn more about neighborhood factors that promote or discourage physical activity, especially among younger people. Expanding understanding about how neighborhood characteristics can influence obesity should help identify effective ways to address the problem. In addition, researchers need a clearer understanding of the mechanisms through which neighborhood social cohesion can influence body weight. If collective efficacy truly prevents excessive weight gain, then future interventions to control weight may need to move beyond individual prescriptions aimed at diet and exercise and address the social environment at the community level. ■

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