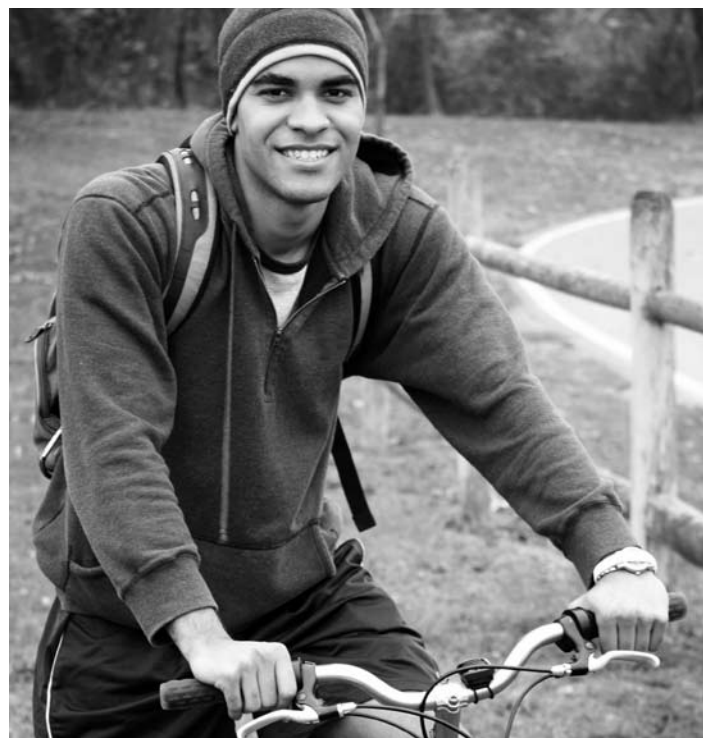


Designing for Active Living Among Adults

SPRING 2008 | RESEARCH SUMMARY

In the U.S., physical inactivity is a major contributing factor to the obesity epidemic. An abundance of research shows that regular physical activity supports overall health and helps adults maintain a healthy weight. Research also indicates that the design of our cities, neighborhoods and transportation systems can make it difficult for adults to be physically active. The absence of parks, trails and other recreational facilities, which is a significant issue for residents of low-income neighborhoods and communities of color, also is a barrier to physical activity.¹ Health, recreation and planning professionals, as well as public officials, are aware of the impact the environment has on our ability to be physically active and are increasingly looking for ways to design communities to encourage and promote physical activity for adults.

This research summary provides a synopsis of peer-reviewed research into the connection between the built environment—the man-made surroundings that provide the settings for physical activity—and physical activity levels among adults. It also explores the environmental factors that support physical activity for both transportation and recreational purposes and examines disparities based on income and race/ethnicity. The research identifies potential strategies for increasing physical activity and reducing obesity among adults and may help to inform the debate concerning policies and practices that support a more physically active adult population. A companion research summary outlines similar findings for children and adolescents.

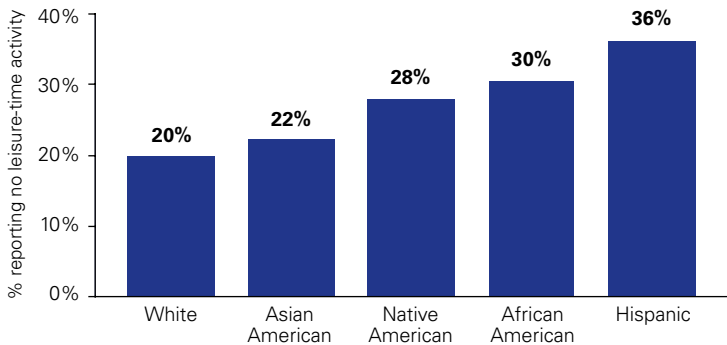


Most American adults are sedentary, and Hispanic and African-American populations report the least amount of physical activity.

Health officials recommend that adults accumulate at least 30 minutes of moderate to vigorous physical activity throughout the day to maintain good health.² Yet according to the 2005 U.S. Centers for Disease Control and Prevention’s (CDC) national Behavioral Risk Factor Surveillance System survey, only 49 percent of U.S. adults meet that recommendation.³ The survey, which analyzed self-reported data collected from 1990 and 2002, also found that more than one-third of the U.S. adult population reported no regular leisure-time physical activity, and that inactivity rates were highest among Hispanic and African-American populations.



Graph 1: Disparities among adults who report no leisure-time physical activity³



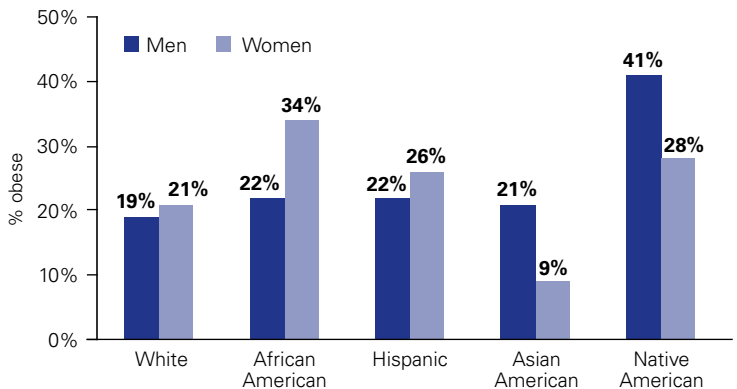
There are even more sobering statistics about the lack of physical activity among U.S. adults. According to a recent analysis of accelerometer (electronic physical activity monitors) data from the 2003–2004 National Health and Nutrition Examination Survey (NHANES), less than 5 percent of adults meet the minimum guideline for physical activity.⁴ It is important to note that individual levels of physical activity that are measured by accelerometer are dramatically lower than self-reported levels of physical activity. Thus, true physical activity levels most likely lie somewhere between the two estimates.

Declining rates of physical activity correspond with a dramatic rise in obesity.

A review of physical activity patterns found that over the past five decades, energy expenditure related to work, transportation and household activities has declined, while sedentary habits such as screen time and automobile usage have increased. The result is an overall decline in physical activity levels among adults.⁵ Likely contributors to the decline in physical activity include the growth of labor-saving devices in the home and workplace, suburbanization, an increase in miles traveled by vehicle and a growing trend toward more sedentary entertainment.

The decline in physical activity levels among U.S. adults has contributed to the dramatic rise in the percentage of Americans who are obese or overweight. Data show that the obesity prevalence among U.S. adults has increased from 13 percent in the early 1960s to 32 percent in 2004, and currently, 66 percent of U.S. adults are overweight or obese. As shown in Graph 2, the rates of obesity are highest among women, Native American, Hispanic and African-American populations.⁶

Graph 2: Prevalence of obesity among adults ages 18 to 26⁶



Neighborhood design is related to residents’ physical activity levels—and their health.

Engaging in physical activity is more than just a matter of personal choice, it is also affected by the built environment.⁷ Community design—including the layout of neighborhoods and cities and the availability and proximity of transportation systems, parks and trails—can promote or inhibit residents’ ability to be physically active and maintain a healthy weight. According to the CDC, creating, improving and promoting places to be physically active can result in a 25 percent increase in the percentage of residents who exercise at least three times per week.⁸

Though many of the societal trends that have led to a decrease in physical activity are unlikely to be reversed, research shows that changing specific aspects of the built environment may make it easier for adults to be physically active. The Transportation Research Board–Institute of Medicine⁹ and the Task Force for Community Preventive Services¹⁰ reviewed studies on physical activity and community design and concluded there is a consistent association between land use patterns and levels of physical activity. Both expert panels recommended policy changes in zoning, development regulations and transportation investments that would encourage the development of more walkable communities.



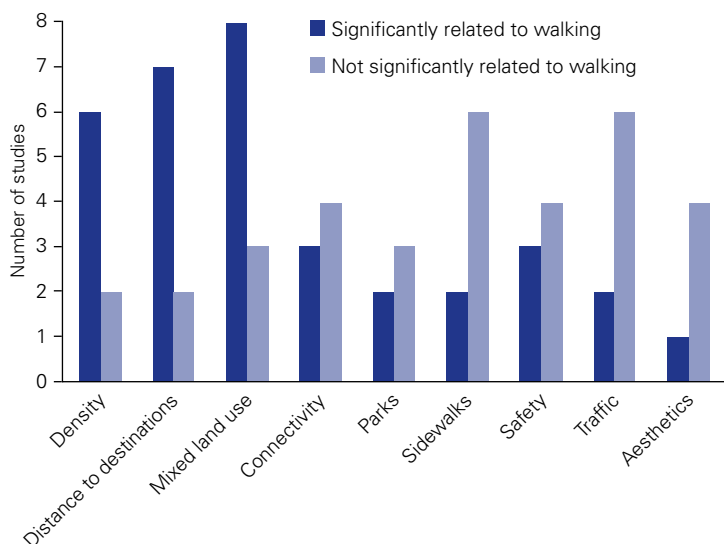
It is critical for the built environment to support physical activity, both for recreational and transportation purposes. There is a significant body of evidence linking transportation planning and community design to adult physical activity levels.

For example, according to a 2006 survey of 1,148 adults living in the southeastern U.S., the number of adults who met physical activity guidelines was 15 percent higher in neighborhoods with sidewalks.¹¹ Another study, which was based on objective accelerometer data collected from Atlanta residents, showed that 37 percent of adult residents who lived in the most walkable neighborhoods met physical activity guidelines, compared to just 18 percent of those who lived in the least walkable neighborhoods.¹²

An analysis of data collected from planning directors in 67 North Carolina counties and surveys of 6,694 residents, which was conducted in 2007, found higher levels of physical activity among residents of counties with more sidewalks, bike lanes and trails; more walkable mixed land use development; and strong planning policies. Residents of counties with active community environments were more than twice as likely to walk and bike for transportation, and among lower-income residents, this association was even stronger.¹³

As illustrated by Graph 3, a recent review of 17 studies published in 2005–2006 found that walking for transportation was most strongly related to living in neighborhoods with high residential density, mixed land use and short distances to destinations.¹⁴

Graph 3: Number of studies with neighborhood characteristics related to walking¹⁴



There are similar findings showing that built environment characteristics are related to physical activity among older adults. Older adults who live in neighborhoods with many destinations within walking distance and who live near parks and other recreation facilities with favorable aesthetics are more physically active than older adults who lack these resources.¹⁵

Communities that support physical activity have lower rates of obesity.

Evidence shows that the built environment is not only related to levels of physical activity, but it also may have a significant impact on obesity rates. A widely publicized study of 448 metropolitan counties conducted in 2003 found that people who lived in compact, higher-density counties walked more and were less likely to be obese and hypertensive than people who lived in more sprawling counties.¹⁶ Since then, many other studies have linked the built environment with risk of overweight and obesity.

According to a study conducted in 2004 that involved 18,386 Atlanta area residents, those who lived in the most walkable neighborhoods were 35 percent less likely to be obese than were residents who lived in the least walkable areas. Findings also indicated that for each additional hour of driving per day, residents' obesity risk increased by 6 percent.¹⁷ Another study, which analyzed data from 33 California cities in 2006, confirmed that the obesity rate among adults who drove the most was 27 percent, which is about three times higher than the obesity rate (9.5 percent) among those who drove the least.¹⁸

Changing the built environment can increase physical activity.

In addition to the many studies showing an association between physical activity levels and the built environment, there is a significant body of research that examines how specific changes to the built environment can increase physical activity levels. For example, a recent review of studies on initiatives to promote physical activity conducted by Britain's National Institute for Health and Clinical Excellence (NICE) concluded that when trails, traffic calming, cycling infrastructure, road restrictions and charging for road use are introduced into communities, levels of physical activity increase.^{19,20,21} According to seven studies conducted across the United Kingdom, introducing protected cycling lanes in both urban and rural areas leads to long-term increases in cycling levels.¹⁹ Opening new sections of cycling trails in or near cities also resulted in increases in cycling on three routes of the National Cycle Network from 1998 to 2001, by 43 percent, 50.1 percent and 29.7 percent, respectively.²²



Proximity to recreation facilities encourages physical activity, especially among adults living in low-income communities.

Research indicates that adults who live near recreation facilities or have aesthetically pleasing places in which to be active engage in more recreational physical activity.^{14,15} For example, a study conducted in 2007 revealed that residents who lived within one mile of a park reported 38 percent more exercise sessions and were four times more likely to visit the park at least once per week than were residents who lived further away. The researchers analyzed data collected from 713 park users and 605 residents who lived in predominantly low-income neighborhoods with a high concentration of Hispanic and African-American residents. The communities were located near eight public parks in Los Angeles.²⁸

A study of 2,723 adult residents living in New York City, Baltimore and Forsyth County, North Carolina, found that adults were 28 percent more likely to participate in recreational activities if there were parks and recreation facilities located within five miles of their home. As shown by Graph 4, analyses also indicated that having recreational resources within one mile from home was associated with significantly higher physical activity levels among Hispanic and African-American adults.²⁹

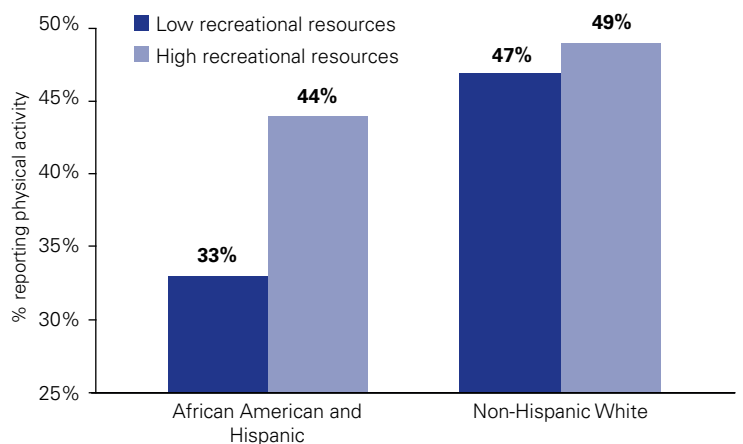
Several U.S. studies show that multi-use trails provide walkers and cyclists with opportunities for both active recreation and transportation. Findings indicate that introducing these trails may promote physical activity, especially among previously inactive persons. For example, researchers surveyed users of recently constructed trails in a rural West Virginia community in 2004 and found 98 percent of respondents reported that they had been inactive before the trails were created. Results also showed that about 25 percent of trail users started engaging in regular exercise (three or more times per week) after the trails' development.²³

Other studies indicate that the placement of trails is critical, and document better use when trails are built near population centers or link desirable destinations.²⁴ Introducing trails also can be a relatively cost-effective way to increase physical activity levels in a community. A study in Lincoln, Nebraska, found that the cost of building and maintaining trails equals about \$98 annually for each new person who uses them and engages in physical activity at least three times per week.²⁵

Traffic calming—slowing vehicle speeds through such measures as installing speed bumps and narrowing roads—also supports physical activity among adults. Evidence from five studies in the United Kingdom suggests that traffic calming devices improved feelings of safety and comfort and were associated with increases in walking and cycling.¹⁹ A study conducted in 2004 among 436 residents of a low-income housing development in North Carolina found that 20 percent of adults walked more after the installation of traffic-calming devices.²⁶

A number of other changes to the built environment—including low-cost strategies—can affect physical activity levels among community residents. Numerous studies have shown that placing signs in building entrances or adding lighting and decoration to dark stairwells increases the number of people who use the stairs.²⁷

Graph 4: African-American and Hispanic adults are more likely to be physically active when they have many recreational resources within one mile of home²⁹



Another study, which collected data from 1,194 residents of low socioeconomic status (SES) neighborhoods in the southeastern U.S., found that residents who had access to a nearby trail were three times as likely to walk for 150 minutes per week than were residents who had no access to a trail. There was no evidence to support this relationship among high SES residents.³⁰

According to a study of 1,180 predominantly Hispanic and African-American adults living in urban low-income housing projects in the Boston area, neighborhood safety may have a significant impact on residents' physical activity levels. Women who reported their neighborhood as unsafe took 4,302 steps per day, while women who reported their neighborhood as safe took 5,178 per day, a 20 percent difference.³¹

Low-income neighborhoods and communities of color are less likely to have access to activity-friendly environments.

Can disparities in access to recreation facilities and walkable neighborhoods explain the lower levels of physical activity that are reported by residents of low-income areas and communities of color? Though there is insufficient data to answer this question with certainty, inequalities in access to activity-friendly environments have been documented.

For example, three national studies conducted in the U.S. analyzed objective geographic information systems and found that neighborhoods with high concentrations of Hispanic and African-American populations or high concentrations of low-income residents were less likely to have public parks and private recreation facilities.^{32,33,34} A study of Maryland, New York and North Carolina communities in 2007 had similar findings.³⁵ Seventy percent of predominantly African-American neighborhoods and 81 percent of predominantly Hispanic neighborhoods did not have recreation facilities, compared to 38 percent of predominantly white neighborhoods. Wealth was a factor as well: 74 percent of the poorest neighborhoods did not have recreation facilities, compared to 46 percent of the wealthiest neighborhoods. Access to public parks was more equitably distributed among income groups.

There is some evidence to suggest that residents of low-income areas may not be able to take full advantage of walkable neighborhoods. In 2008, an analysis of 73 neighborhoods in Austin, Texas, that had high proportions of Hispanic residents showed common indicators of walkability were better in the low-income areas, including connected streets, mixed land use and extent of sidewalks. Direct observations by researchers, however, revealed that the low-income areas had less aesthetic appeal, poorer maintenance, lower safety, higher rates of crime and more vehicle crashes.³⁶ These findings demonstrate that residents of low-income neighborhoods may have unique barriers that prevent physical activity, even when some features of their built environment support active transport.

Conclusions

- Changes in motorized travel, the built environment and an increasing reliance on sedentary entertainment have decreased opportunities for adults to be physically active, and the declining levels of physical activity have contributed to the obesity epidemic.
- The majority of U.S. adults do not meet the recommended physical activity guidelines, and two-thirds of U.S. adults are overweight or obese, with the highest obesity rates among Native Americans, African Americans, Hispanics and women.
- Expert evaluations conclude that adults who live in walkable neighborhoods are more physically active and indicate that land use policy should be considered an important public health issue.
- A significant body of research shows that obesity rates are higher among adults who drive the most and live in low-walkable neighborhoods.
- Introducing sidewalks, bike trails and traffic calming devices can lead to increased physical activity.
- Walking for transportation is consistently related to having many destinations near homes, connected streets and high residential density.
- People who live in walkable neighborhoods and have nearby recreation facilities are more likely to have higher levels of physical activity and to meet daily guidelines for physical activity. This relationship may be strongest among adults who live in low-income neighborhoods and communities of color.
- People living in low-income areas and communities of color have less access to recreation facilities, and face unique environmental challenges that may make it difficult for them to engage in regular physical activity. Additional research is needed to develop strategies for increasing physical activity levels among these populations.

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Active Living Research, a national program of the Robert Wood Johnson Foundation, stimulates and supports research to identify environmental factors and policies that influence physical activity for children and families to inform effective childhood obesity prevention strategies, particularly in low-income and racial/ethnic communities at highest risk. Active Living Research wants solid research to be part of the public debate about active living.

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