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The built environment and physical activity: What is the relationship?

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based on a Research Synthesis by
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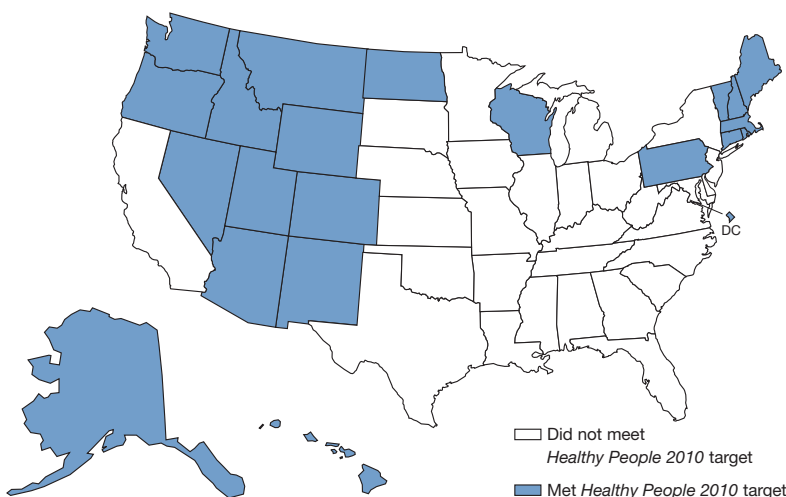
SUMMARY OF KEY FINDINGS

- > **Many cross-sectional studies show that certain built environment features are associated with activity.** These features include: proximity to destinations, sidewalks, aesthetics, access to parks and open spaces and the “walkability” of the community.
- > **The current body of evidence is relatively weak in showing that changes to the built environment will *promote* activity.** Many studies show an association between the two factors, but few studies are able to show that changes to the built environment will directly lead to improvements in activity.
- > **Many communities are undertaking efforts to improve the built environment.** These efforts provide important research opportunities to examine the impact of built environment changes on activity.

Why is this issue important to policy-makers?

- **Regular physical activity helps prevent diseases** including obesity, heart disease, hypertension, diabetes, colon cancer and premature mortality.
- **Despite its benefits, many Americans are not sufficiently active,** and only 21 states and the District of Columbia meet the *Healthy People 2010* goal for adult physical activity (Figure 1).

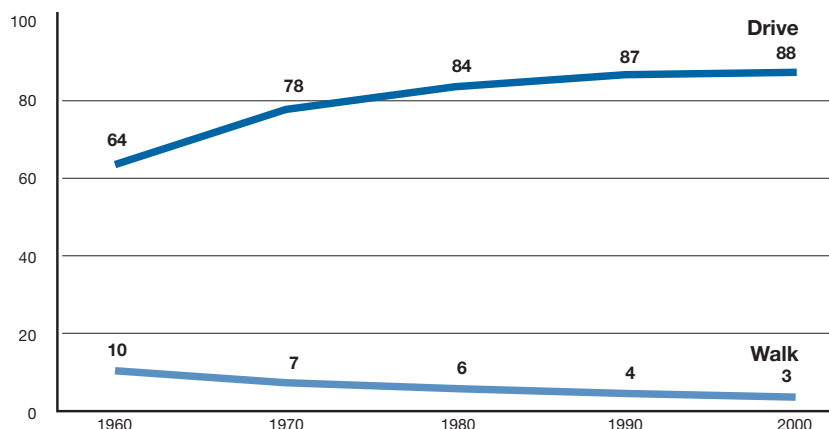
Figure 1. States meeting Healthy People 2010 target: at least 50 percent of adults have achieved recommended levels of physical activity, 2003



Source: CDC, BRFSS.

- **Among other issues, use of cars contributes to low levels of physical activity in the US.** In the last several decades car-reliance has increased. The percent of US workers driving to work rose from 64 to 88 percent from 1960 to 2000, while the share walking to work declined (Figure 2).

Figure 2. Commute mode for US workers (percent taking each mode), 1960–2000



Source: US Decennial Census.

Several characteristics of the built environment are associated with activity.

BUILT ENVIRONMENT FEATURES

Neighborhood features that make up the built environment and affect activity can be divided into four categories:

Recreational resources include walking trails, bicycling trails, parks and open spaces. Note: This policy brief is focused on the outdoor environment so we do not include gyms, pools, etc. in this category.

Land use characteristics include the number and proximity of destinations (such as shops, businesses, or places of work), the density of residential and employment areas, the land use mix (residential, employment and services) and how well the streets are connected (e.g., are the streets designed in a grid pattern or broken up with cul-de-sacs). Some studies combine these types of features into a “walkability” index.

Neighborhood form characteristics include the availability of sidewalks and the presence of streetlights.

Community environment characteristics include things like aesthetics, community support or cohesion, neighborhood activity and the presence of hills, traffic, crime and unattended dogs.

- **There is an increasing recognition of the need to focus on environmental factors—including the “built environment”—that may help promote activity.** The “built environment” describes physical or man-made features such as sidewalks, bicycle trails, streetlights, traffic, safety from crime and parks that may promote or discourage activity.
- **Policy-makers are ultimately interested in whether changes to the built environment can lead to greater activity, and therefore, better health.** This policy brief explores these issues and will help policy-makers focus on aspects of the built environment that might facilitate more active, healthy lifestyles.

What is the association between the built environment and activity?

Recreational Resources

- **There is reasonably strong evidence of an association between parks and open spaces and walking.** Having access to public open spaces is associated with walking as a form of transportation and achieving recommended levels of walking (Reference 1). The evidence on the availability of walking trails or biking trails and overall activity is mixed with some studies indicating a positive relationship while other studies find no association.

Land Use

- **Proximity to destinations is associated with walking.** In addition, neighborhoods that are defined as “walkable” are associated with increased levels of walking (References 2, 3, 4). The evidence on other land use characteristics is mixed.

Neighborhood Form

- **The availability of sidewalks is strongly associated with walking, but not with overall physical activity.** This seems counterintuitive, but walking may substitute for other forms of physical activity. There is insufficient evidence to draw conclusions on the association of streetlights and activity.

Community Environment

- **An aesthetically pleasing environment is associated with walking, but crime and high traffic are not.** That an aesthetically pleasing environment is associated with walking is not surprising—people prefer to walk in areas that are visually pleasing—but crime and traffic would seem to be barriers to walking. This finding may be because urban areas often have more crime and traffic, but are also more “walkable”.
- **Social and community support are also associated with activity.** Residents of neighborhoods where many people are seen exercising or where they perceive social support for activity are more likely to be active.

But we do not yet know if changes to the built environment will produce changes in activity.

How do personal preferences and social support combine with the built environment to affect activity?

- **It is clear that both personal preferences and social factors affect activity.** In fact, most research shows that individual and social factors are stronger drivers of activity than the built environment. What is not clear is how these three factors—personal preferences, social support and the built environment—combine to influence activity. For example, do people walk more because they live in areas that are more “walkable” or do people who prefer a more active lifestyle choose to live in areas that support their values?
- Because of the lack of rigorous longitudinal studies and the inability to tease apart how personal preferences versus the environment affect activity, we cannot conclude that changes to the built environment will produce changes in activity.

How does the built environment affect obesity?

- **Evidence is inconclusive on the relationship between sprawl and weight.** One study found that sprawl was associated with being overweight and obese (Reference 11). Another found that people living in areas that were more “walkable” weighed less (Reference 3). But the two strongest studies that followed the same group of people over time found no relationship between sprawl and obesity (References 4, 12).

What changes are communities making?

- **Even as research progresses to answer critical questions about the built environment, states and local communities are taking action—**using zoning rules, capital funding and transportation and land use policies—to try to increase walking and biking opportunities and make these activities more accessible and safe (Figure 3).

Figure 3. State and local built environment initiatives

Policy Tools Used	Sample Initiatives
Zoning ordinances and building codes	> Changing zoning codes to encourage mixed use development and higher density
Land use policies*	> Encouraging residential development that is pedestrian and transit-friendly > Siting schools and public services close to destinations and transit
Transportation policies and funding	> Improving public transit options > Developing active transportation alternatives including bicycle lanes and walking trails
Capital funding and tax policies	> Introducing tax or other incentives to encourage growth that is mixed use, transit-oriented and pedestrian-friendly

* Policies designating land uses, density and growth patterns.

THE BUILT ENVIRONMENT AND MINORITIES AND CHILDREN

Racial and ethnic minorities are more likely to walk for transportation, but overall activity is lower than for whites.

Minority groups are more likely to live in urban, walkable communities, walk for transportation, and have active work than nonminority groups (References 5, 6, 7). Despite this finding, minority groups are less likely to be active overall, primarily because of lower levels of recreational and vigorous activity.

There are differences in perceptions of social support and safety across racial and ethnic groups. One study found that African Americans were more likely to give a lower safety rating than whites to the same community (Reference 8). Another study found that seeing other people exercising was associated with activity for African Americans, but not for other groups (Reference 9).

There may be important differences in how children respond to the built environment compared to adults. Children’s play activity may be promoted while adults’ transportation activity may be inhibited by cul-de-sac rather than grid street formation (Reference 10). Like adults, adolescents—who are old enough to walk independently but may be too young to drive—are more likely to walk for transportation in “walkable” communities.

Policy Implications

- > **There is a pressing need for rigorous research to examine the effectiveness of current efforts to make communities more walkable.** Many communities are undertaking efforts to improve the built environment. These efforts provide important research opportunities to examine whether changes to the built environment will lead to increased activity.
- > **The current body of evidence is relatively weak in showing that features of the built environment can promote activity.** Many studies show an association between the two factors, but few studies are able to show that changes to the built environment will directly lead to improvements in activity.
- > **A multi-faceted approach may be needed to increase activity in communities.** Many intersecting factors influence physical activity. Changes to community environments will need to be combined with policy changes, health promotion activities, greater social support for activity and individual interventions that incorporate theories of behavior change.

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