

## Designing for Active Transportation

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Physical inactivity causes numerous physical and mental health problems, is responsible for an estimated 200,000 deaths per year, and contributes to the obesity epidemic.<sup>1</sup> The design of our cities, neighborhoods, and transportation systems often discourage walking, bicycling, or other activities that would help more Americans reach the recommended 30 minutes each day of moderately intense physical activity.<sup>1</sup> Health professionals, planners and policy makers want to know how to design neighborhoods and workplaces that make it easier for people to get up and get active.

This research summary gives a synopsis of the current state of peer-reviewed research into what makes a community “walkable” or “bikeable,” so people can get physical activity as part of their daily routine—what is known as active living. Companion research summaries outline findings on the environments that encourage people to be active in their leisure time, and on the environmental influences on childhood obesity.

### RESEARCH SUMMARY

Planning, community design, and health behavior studies consistently find that the way communities are built influences whether people drive, take transit, walk or bicycle to get where they are going.<sup>2-5</sup>

#### Proximity and connectivity create walkable neighborhoods

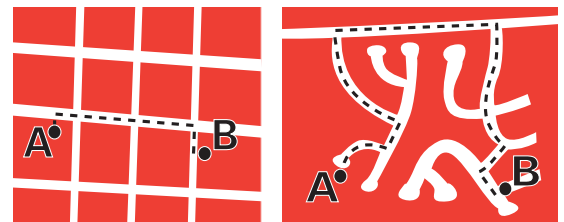
Many factors determine whether it is possible to walk or bike to destinations near home. The best-researched elements are proximity—having destinations nearby to walk to—and connectivity—safe and direct ways to make the trip. **Proximity** is usually measured through the mix of homes, shops, schools, and other destinations. Density is an important measure because more compact places support a richer mix of destinations near home. **Connectivity** is measured by whether the street network provides direct routes and whether facilities provide safe connections for pedestrians and bicyclists.<sup>2</sup> Community audit tools show promise in accurately assessing walkability, and can be useful to policy-makers.<sup>6</sup>

- People are more likely to commute to work on foot or via bicycle if they live in a city center, live close to a non-residential building, live very close to a grocery or drug store, and have good access to public transportation.<sup>7</sup>

**Active living is a way of life that integrates physical activity into daily routines.**

- In the Puget Sound region, a higher proportion of people take shopping trips and commute via foot in areas with higher population and employment density.<sup>8</sup>

**Grid street networks create more direct routes and make walking easier**



From *Health and Community Design*, L.D. Frank

- ‘Grid’ street networks can increase biking and walking by reducing trip distances, offering alternative pathways, and slowing automobile traffic.<sup>9</sup>
- People living in areas where more of the street network is a grid take more trips on foot.<sup>10</sup>



## Walkable neighborhoods mean more trips via foot and bicycle

- An analysis of studies in six communities found that on average, residents in highly-walkable neighborhoods took twice as many walking trips as people in less walkable neighborhoods. Most of the increase was increased walking for errands or to go to work.<sup>2</sup>
- 56 percent of residents in traditional neighborhoods walked to nearby commercial areas, versus 33 percent of those living in suburban neighborhoods.<sup>11</sup>



- Residents of a walkable neighborhood and a traditional suburban development reported similar levels of physical activity. But the residents in the walkable neighborhood got more of their activity as part of their daily routine, through bicycling and walking when running errands.<sup>12</sup>
- Women over age 70 living in urban neighborhoods with a mix of services and a good pedestrian environment were more likely to walk to local shops than their suburban counterparts.<sup>13</sup>

## Design changes encourage activity indoors

Several studies have shown that placing signs in building entrances, or adding lighting and decoration to dark stairwells, increases the number of people using the stairs.<sup>14</sup>

## Active living in walkable neighborhoods: more than self-selection

Active people tend to choose walkable neighborhoods,<sup>15</sup> but studies show more is at work. And demand for walkable communities is widespread.

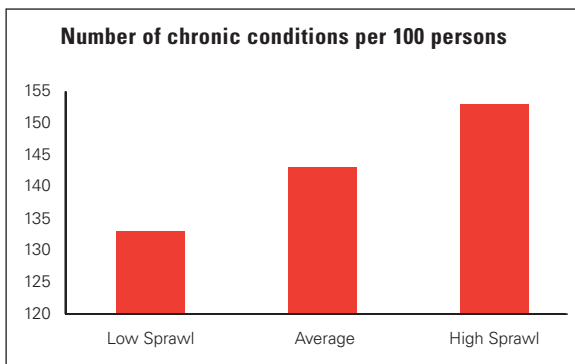
- Regardless of their stated travel preferences, people in higher-density areas with pedestrian-friendly characteristics such as sidewalk continuity and street connectivity took more non-work trips by foot.<sup>10</sup>
- An 11-year study that followed residents in Seattle as they moved found that people shifted some trips to transit, bicycling, and walking as a result of moving into more walkable neighborhoods.<sup>16</sup>
- About one-third of residents of low density, single use, low-connectivity environments in the Atlanta region would prefer to live in a more walkable neighborhood.<sup>17</sup>



Photo by Dan Burden

## Walkable communities have a positive impact on health

- People who live in neighborhoods with a mix of shops and businesses within easy walking distance have a 35 percent lower risk of obesity.<sup>18</sup>
- On average, people in highly walkable neighborhoods take one or two more walking trips per week than those living in places with poor walkability. This additional 15 to 30 minutes of walking per week means a 150 pound person expends the energy equivalent of about one extra pound per year.<sup>2</sup>
- A national study of 448 metropolitan counties found that people living in compact, higher-density counties walk more, weigh less and are less likely to be obese or have hypertension than people living in more sprawling counties.<sup>19</sup>
- People in more compact metropolitan areas suffer from significantly fewer chronic medical conditions than their counterparts in more sprawling regions.<sup>20</sup>



- Among middle-aged men, walking or bicycling to work was associated with lower weight and less weight gain, whether or not the men engaged in more vigorous forms of exercise.<sup>21</sup>



www.pedbikeimages.org/Dan Burden

## Walkable neighborhoods encourage active living

The research shows clearly that people walk and bicycle more in neighborhoods that have mixed use, higher density, connected streets, and pedestrian facilities. A January 2005 joint report of the Transportation Research Board and Institute of Medicine also concluded “the available empirical evidence shows a linkage between the built environment and physical activity.”<sup>15</sup> Current research is exploring the details of walkable design and the impact on young people, older adults, people with lower incomes, and those with disabilities. While the studies conducted to date have limitations, the consistency of the findings indicates that designing communities for active living is a promising avenue for increasing physical activity.



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Active Living Research, a national program of The Robert Wood Johnson Foundation, encourages and supports cross-disciplinary research about environmental factors and policies with the potential to substantially increase physical activity among Americans of all ages, incomes and ethnic backgrounds. Active Living Research wants solid research to be part of the public debate about active living.

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