



## How cities use parks to...

# Improve Public Health

### Executive Summary

People value the time they spend in city parks, whether walking a dog, playing basketball, or having a picnic. Along with these expected leisure amenities, parks can also provide measurable health benefits, from providing direct contact with nature and a cleaner environment, to opportunities for physical activity and social interaction. A telephone survey conducted for the American Public Health Association found that 75 percent of adults believe parks and recreation must play an important role in addressing America's obesity crisis.

Because of the different ways people experience parks, cities need to provide all types, from neighborhood facilities to large natural areas. In fact, many of the health benefits described below can be best achieved through small-scale, readily accessible sites. A full reckoning of the benefits of parks will better inform public policy about parks and provide a useful public health tool.

### Key Point #1

Parks provide people with contact with nature, known to confer certain health benefits and enhance well-being.

### Key Point #2

Physical activity opportunities in parks help to increase fitness and reduce obesity.

### Key Point #3

Parks resources can mitigate climate, air, and water pollution impacts on public health.

### Key Point #4

Cities need to provide all types of parks, to provide their various citizen groups with a range of health benefits.

**KEY POINT #1:**

*Parks provide people with contact with nature, known to confer certain health benefits and enhance well-being.*

Harvard University professor Edward O. Wilson, Ph. D., argues in his book *Biophilia* that human beings have a genetic tendency to seek connections with other living things. In *The Diversity of Life* he observes that the "favored living place of most peoples is a prominence near water from which parkland can be viewed," and that "in the U.S. and Canada, more people visit zoos and aquariums than attend all professional athletic events combined."

Health studies have shown that contact with nature—with plants, with animals, with pleasing landscapes, and with wilderness—offers a range of medical benefits. These include lower blood pressure and cholesterol levels, enhanced survival after a heart attack, more rapid recovery from surgery, fewer minor medical complaints, and lower self-reported stress. In children with attention disorders and in teens with behavioral disorders, contact with nature has resulted in significant improvement (Frumkin, 2001).

In fact, recent research suggests that exercise is more beneficial—leading to enhanced tranquility, and more relief of anxiety and depression—when it occurs in natural settings, like parks, rather than along urban streets (Bodin and Hartig, 2003). The opportunity for so-called "green exercise" is an important asset that city parks offer.

**KEY POINT #2:**

*Physical activity opportunities in parks help to increase fitness and reduce obesity.*

Overweight and obesity are epidemic problems across the country, and related conditions such as diabetes are on the rise. Scientists attribute these worrisome trends to two factors: more calories consumed, and fewer calories burned. A primary focus of attention is providing environments where people can be physically active. Parks offer such an opportunity.

The findings of a study of park use by older adults in **Cleveland**, published in *P&R* magazine, include:

- Active park users were less likely to be overweight than those who had longer park visits and either used the park for passive activities or did not use the park at all;
- Active park use was negatively related to visits to a physician other than routine checkups; and
- The level of physical activity was the strongest predictor of lower blood pressure.

A study in the October 2000 issue of *The Physician and Sportsmedicine* found that physically active individuals had lower annual direct medical costs than did inactive people. The cost difference was \$330 per person, based on 1987 dollars. If all inactive American adults became physically active, the potential savings could be \$29.2 billion in 1987 dollars, or \$76.6 billion in 2000 dollars.

Certain features predict greater use for physical activity. These include accessibility, proximity, good lighting, toilets and drinking water, and well-designed and well-maintained paths, as well as attractive scenery (Frumkin, 2003).

**KEY POINT #3:**

*Parks resources can mitigate climate, air, and water pollution impacts on public health.*

**Climate.** The dark surfaces of rooftops, roadways, and parking lots in urban areas absorb the day's heat and radiate it at night. As a result, cities cool less at night than surrounding suburban areas, and remain hotter during the days. This urban heat island effect is a significant public health risk, as more people die in hot spells in summer than all other weather events in the U.S. combined. (Changnon, 1996). The lack of shade and evapotranspiration from plants contributes to the problem. According to the University of Washington's Center for Urban Horticulture, a mature tree canopy "reduces air temperature by about five to ten degrees."

**Air.** The trees in parks also help improve air quality by removing pollutants from the atmosphere. Since urban neighborhoods have especially high concentrations of pollutants related to traffic, boilers, generators, and other sources, trees are especially important to filter the air. An Urban Ecosystem Analysis conducted by American Forests revealed that in **Atlanta**, trees remove 19 million pounds of pollutants each year, providing a service valued at \$47 million.

Cleaner air offers important health benefits. Ozone threatens the health of children, the elderly, and people with asthma and other respiratory diseases. Particulate matter actually increases mortality in polluted cities, especially affecting people with underlying heart and lung disease. Toxic air pollutants increase the risk of cancer. Therefore, trees offer a wide range of health benefits by cleaning the air.

**Water. New York City** began purchasing land in upstate New York more than 150 years ago, and now satisfies its vast need for clean water from three watersheds, the Croton, Catskill, and Delaware, with a combined area of more than 2,000 square miles. This strategy—protecting source water—has saved the city billions of dollars in water treatment costs, according to a World Bank study, and has avoided countless cases of water-borne disease.

States and communities across the U.S. are purchasing open space in the watersheds that feed the water resources that provide hundreds of millions of people their drinking water each day. Public agencies in San Antonio have protected thousands of acres of open space to ensure that the Edwards Aquifer recharge zones are not developed. Failure to do so could have contaminated the drinking water for more than a million of the city's residents.

Parks along urban waterways, such as **Philadelphia's** Wissahickon Park or **Washington, D.C.'s** Rock Creek Park, help keep water clean by absorbing and cleansing the polluted run-off from impervious surfaces before it reaches the water. These parks also reduce stream erosion by maintaining steady flow volumes through the slow release of absorbed run-off.

**KEY POINT #4:**

*Cities need to provide all types of parks, to provide their various citizen groups with a range of health benefits.*

Different kinds of parks may differ in the health benefits they offer. A neighborhood park may function as a venue for social interaction, physical activity, and nature contact. Larger parks may offer these same benefits and some additional ones, such as cooling and cleaning of urban air, and protection of source water.

It is critical that a parks system provide a variety of functions because different groups of people have different health needs. People from different age, ethnic, and socioeconomic groups may have different traditions in physical activity and attitudes towards natural settings. For people who are economically disadvantaged, parks are an affordable means to healthy activities.

Play Across **Boston**, a project of the Harvard Prevention Research Center, concluded that in addition to organized league sports, it was important to provide open recreation to provide opportunities for youth to try different sports and for non-athletes to be active (Gortmaker, 2002).

On the other end of the age spectrum, researchers at the Tokyo Medical and Dental University monitored the longevity of more than 3,000 people born between 1903 and 1918 and living in Tokyo, one of the most densely populated cities in the world. The results of the study, published in the *Journal of Epidemiology and Community Health*, showed that proximity to public parks and tree-lined streets appeared to have the greatest impact on the length of pensioners' lives, even when taking into account factors known to affect longevity, such as gender, marital status, income, and age.

Ethnic groups also differ in their preferences. Race and ethnicity have been associated with choice of parks and with types of activities engaged in by park users (Hutchinson, 1987; Dwyer and Gobster, 1997; Tinsley et al., 2002). These differences may relate in part to park amenities; for example, Dwyer and Gobster (1997) found that African-Americans were more likely to use facility-based urban recreational parks while whites were more likely to use wildland parks for such activities as camping and hiking. A study of **Chicago's** Lincoln Park found that Asians, Latinos, blacks, and whites all valued certain park attributes, such as the lake, ponds, and zoo. However, the natural environment was the most frequently mentioned favorable attribute among

Asians, Latinos, and whites, while cultural facilities were most favored among blacks (Gobster, 2002). In this study, whites exhibited higher participation rates in active individual pursuits, such as biking, walking and jogging in the park, while black, Latino, and Asian park users exhibited higher participation rates in passive activities such as sitting and relaxing. Asians and Latinos participated more heavily in group social activities such as picnicking (Gobster, 2002). Another study comparing black and white park users, also found a stronger preference among whites for such activities as swimming and hiking (Floyd et al., 1999).

The 1994-1995 National Survey on Recreation and the Environment compiled trends in outdoor activities across age, sex, race, income, education, car ownership, and size of residence. While some activities, such as walking and family gathering, had high participation rates across most population segments, others did not. For instance, boating and golf activity rates were clearly tied to income levels, while outdoor team sports participation was linked to age. Equally diverse were the barriers to participation identified by those who do not engage in active outdoor recreational activities. Even as these type of national surveys are helpful, a local approach to identifying residents' needs is important to providing the most effective opportunities for health-enhancing park activities (Cordell, 1999).

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