



# Health Benefits of Riverfront Parks

## MENTAL, SOCIAL AND PHYSICAL HEALTH

In the last several decades, research has emerged confirming numerous health benefits of urban parks and nature.

### Studies have shown that nature can have direct benefits on:

- Mental Health
- Chronic Disease
- Cognitive Function
- Children's Health and Development

### Indirect health benefits that result from urban parks include:

- Increased Physical Activity
- Decreased Air Pollution
- Increased Community Attachment and Social Support
- Decreased Urban Heat Island Effects
- Social Equity and Access to Nature

Scientists are finding that "nature is not only nice to have, but it's a have-to-have for physical health and cognitive functioning." [1]

### Improved Mental Health

A study in Wisconsin revealed "a strong association between better mental health among both urban and rural residents in areas with more green space. Higher levels of neighborhood green space were associated with significantly lower levels of symptoms for depression, anxiety and stress. The researchers suggested that 'greening could be a mental health improvement strategy in the United States.'" [2]

- **Reduced Stress**
  - "When a person is stressed, views of nature can reduce blood pressure, muscle tension, and pulse rate within minutes." [2]
  - People "living more than 1 kilometer away from a green space have nearly 50 percent higher odds of experiencing stress than those living fewer than 300 meters from a green space." [3]
  - According to a study in the Journal of Environmental Psychology, "participants felt less stressed and more creative in the park environments than in the city centre." [4]
  - A study from Scotland focused on low-income areas found "lower levels of perceived stress for residents with higher proportions (more than 43 percent) of green space." [2]

- **Decreased Anxiety**
  - A Netherlands study shows that “people who lived in residential areas with the fewest green spaces had a 44 percent higher rate of physician-diagnosed anxiety disorders than people who lived in the greenest residential areas.” [3]
  - A study from New Zealand determined that every “1-percent increase in the proportion of usable or total green space resulted in a 4-percent lower rate of anxiety/mood disorder treatment.” [2]
  
- **Decreased Depression**
  - In one study, “participants with serious depression received significant cognitive benefits and improvements in mood after a 50-minute walk in a natural setting relative to one in an urban setting.” [2]
  - “Physician-diagnosed depression was 33 percent higher in the residential areas with the fewest green spaces, compared to the neighborhoods with the most.” [3]
  - “Increasing the number of green spaces in cities... could greatly reduce the number of urban residents disabled by depression.” [4]
  - Higher tree density in urban areas is associated with decreased risk of depression among low-income urban families. [2]
  
- **Increased Happiness**
  - A UK study showed that “those who moved to greener neighborhoods still felt the mental health benefits three years later. In contrast, the happiness increase from a pay raise or promotion usually lasts only six months.” [4]
  - Teams of scientists in Vermont studied thousands of tweets from parks in San Francisco and found:
    - that “across all the tweets, people are happier in parks;”
    - that “the effect was stronger in large regional parks with extensive tree cover and vegetation;”
    - that the tweets in the parks compared to the ones not had an increase in sentiment equivalent to that of Christmas Day; and
    - that “negative language...decreased in the period immediately after visits to urban parks.” [5]
  
- A strong amount of evidence supports that “physical activity in green spaces has stronger mental health benefits than physical activity in non-green spaces.” [3]
- “Urban residents have a higher percentage of mental illness than their rural counterparts.” [4]

### Improved Chronic Disease/Physical Health

- According to data involving over 290 million people, “populations with higher levels of greenspace exposure are also more likely to report **good overall health.**” [6]
- A research team from UEA’s Norwich Medical School “found that spending time in, or living close to, natural green spaces is associated with... [a reduced] risk of type II **diabetes, cardiovascular disease, premature death and preterm birth.**” [6]
- A study on **diabetic** individuals showed that “thirty minutes of walking in nature resulted in larger drops in blood glucose than three hours of cycling indoors.” [7]

- A study in the UK showed that “males living in the greenest urban areas in the UK had a 5 percent lower risk of **cardiovascular disease** mortality and 11 percent lower risk of **respiratory disease** mortality than those in the least green areas.” [7]
- This team also found that “people living closer to nature also had reduced diastolic **blood pressure**, **heart rate**, and stress” [6]
- Another study shows that “exposure to a diverse variety of bacteria present in natural areas may also have benefits for the **immune system and reduce inflammation.**” [6]
- Professor Andy Jones, a co-author of the above study added that “exposure to health-promoting environments is increasingly recognized as both preventing and helping treat disease. Our study shows that the size of these benefits can be enough to have a meaningful clinical impact” [6]

### **Increased Cognitive Function**

In 2008, researchers concluded that “simple and brief interactions with nature can produce marked increases in cognitive control. To consider the availability of nature as merely an amenity fails to recognize the vital importance of nature in effective cognitive functioning.” [2]

- A study by Rachel and Stephen Kaplan found that “in a natural environment... people paid attention more broadly and in a less effortful way.” [1]
- In another study, “researchers gave participants a tough memory and attention test. Participants then were assigned to take a 50-55 minute walk through either the Ann Arbor Arboretum or downtown Ann Arbor, MI. When the participants returned to the lab and took the test again, the arboretum group scored significantly higher.” [2]
- However, although many people are not able to go on 50 minute nature walks, “even brief ‘nature breaks’ can improve brain performance by providing a cognitive reprieve from the complex demands of modern life.” [2]
- In another memory study, in the middle of a test “participants got a 40 second break, during which they looked at simulated external views: some looked at a simulated view of a concrete roof, while others looked at a ‘green roof’ that resembled a flowering meadow. The participants who looked at the green roof performed significantly better on the second half of the test than the others.” [2]
- “Time spent in parks and gardens can improve quality of life and function of dementia patients by reducing negative behaviors up to 19 percent, improving sleep patterns and improving hormone imbalance.” There is also authority for fewer falls and significant reductions in medications in these patients. [2]

### **Improved Children’s Health and Development**

- A study shows that “a 20-minute walk in a park or other natural area can help children with **attention deficit hyperactivity disorder** focus better.” [8]
- Another group studied children diagnosed with **ADHD** walking in different environments. “The children who walked in a park showed more improvements in attention after walking in a park than those who took walks in downtown or neighborhood settings. The effect was comparable to those reported for common pharmaceutical therapies for ADHD.” [2]
- One study even suggests that children with **ADHD** “do as well or better with outside play than they do with medication.” [9]



- **Grades** can be positively impacted. “Active children show more brain activity, and they are 20 percent more likely to earn an A in English or Math.” [8]
- Similarly, a more natural view from a child’s home causes the child to have greater **impulse control**, be able to concentrate better, and delay gratification longer. [2]
- “Children today experience record levels of **obesity** and preventable diseases like **hypertension and Type II Diabetes**, caused in part by a decrease in physical activity and increase in processed food consumption. Using parks programming to help children move more and eat healthily can help children fight these diseases and live longer.” [7]
- Even just views of nature can play a positive role. Researchers found that “the presence of more trees and vegetation was associated with **higher scores on standardized tests**.” Another study found that views from cafeteria and classroom windows with greater vegetation were “positively associated with elevated standardized test scores, graduation rates, and percentage of students planning to attend a 4-year college, as well as fewer occurrences of criminal behavior.” [2]
- These researchers also found consistent evidence that higher greenness exposure during pregnancy is positively associated with **birth weight**.” [10]

## Indirect Benefits

- **Increased Physical Activity**
  - The CDC has determined that the sedentary lifestyle of many American adults is “contributing to an increased incidence of obesity along with obesity-related disease, such as high blood pressure, diabetes, congestive heart failure and stroke.” A U.S. Surgeon General Report has found that Americans can improve their health by adding moderate amounts of physical activity. [11]
  - People who “exercise outdoors tend to do so for longer periods and more energetically than those who solely exercise indoors.” [2]
  - Also, people “who use parks and open spaces are three times more likely to achieve recommended levels of physical activity than non-users.” [2]
  - Researchers found “fairly strong evidence for a positive association between greenness and physical activity and a less consistent negative association between greenness and body weight.” [10]
- **Decreased Air Pollution**
  - “Excess air pollution can lead to airway inflammation and reduced lung function. Pollution can also worsen health problems such as asthma, chronic obstructive pulmonary disease and cardiovascular disease...Trees and vegetation in parks can help reduce air pollution directly by removing pollutants and reducing air temperature.” [2]
  - “Trees in urban parks remove toxins from the air, such as carbon monoxide, that can pose serious health risks to people... Urban trees in the U.S. remove 711,000 tons of air pollution annually, at a value of \$3.8 Billion.” [12]
  - American Forests has found that “trees in Atlanta remove 19 million pounds of pollutants annually, a service worth \$47 million.” [11]



- **Increased Community Attachment and Social Support**
  - Americans are becoming more socially isolated but it is clear that social relationships are important for health and well-being in terms of certain disease but also discouraging health threatening behaviors such as smoking. “Research has shown a positive relationship between social ties and cohesion and green space.” [2]
  - Communities that “work together to create green infrastructure designed to be resilient to storms and other disasters can also generate and nurture social connections in these shared places.” [2]
  - “Walkable green space is associated with greater longevity in older people...and this is likely connected to the increased social interaction that is often associated with outdoor time for elderly individuals.” For the elderly, increased social interaction is “correlated with lower rates of mortality, depression and cognitive impairment.” [2]
- **Decreased Urban Heat Island Effects**
  - Heat has direct effects on human health and cities are generally warmer than surrounding areas due to their impervious surfaces. Green space can improve the flow of cool air and urban tree canopies can reduce the ambient temperature. “Parks can influence nearby temperatures, sometimes for a distance as great as the diameter of the park.” [2]
- **Increased Social Equity and Access to Nature**
  - Typically higher income neighborhoods have greater access to green space. “Equal access to nature seems to help remediate some health disparities between low- and high-income neighborhoods.” In fact, “low-income neighborhoods with large amounts of green space can have cardiovascular mortality rates similar to those of wealthy neighborhoods.” [2]
  - Lack of “recreational facilities and green space in low-income communities is associated with decreased physical activity and increased obesity, both of which place people at higher risk for mortality.” [2]

## Resources

### USDA-Urban Nature for Human Health and Well-Being

“A new 2018 report by the [USFS National Urban Forest Technology and Science Delivery Team](#) summarizes the most current research related to nature and public health, providing a resource to help natural resource professionals, health professionals, urban planners, architects, educators, and community groups effectively communicate the health benefits of nature to their constituents. The report provides an overview of the current research in five key areas: pollution and physical health, active living, mental health, stress reduction, and social health, community cohesion, and resilience, and discusses issues of social equity and access to nature in urban environments.”

[Urban Nature for Human Health and Well-Being \(usda.gov\)](https://www.usda.gov/urban-nature-for-human-health-and-well-being)

### American Society of Landscape Architects

This entity has compiled hundreds of research studies and news articles on health topics separated into adults and children.

[Health Benefits of Nature | asla.org](https://www.asla.org/health-benefits-of-nature)



### **Yale Environment 360**

“When I wrote *Last Child in the Woods* in 2005, this wasn’t a hot topic,” said Richard Louv, a journalist in San Diego whose book is largely credited with triggering this movement and who coined the term Nature Deficit Disorder. “This subject was virtually ignored by the academic world. I could find 60 studies that were good studies. Now it’s approaching and about to pass 1,000 studies, and they point in one direction: Nature is not only nice to have, but it’s a have-to-have for physical health and cognitive functioning.”

[Ecopsychology: How Immersion in Nature Benefits Your Health - Yale E360](#)

### **National Recreation and Park Association**

“A growing body of evidence continues to make the case [why parks are a critical part of the community’s public health infrastructure](#). We’ve compiled useful facts from trustworthy resources into five fact sheets for you to use to educate your community about the different ways parks can improve community health.”

[Parks and Health Fact Sheets | National Recreation and Park Association \(nrpa.org\)](#)

### **Trust for Public Land**

[Microsoft Word - TPLhealth\\_benefits\\_FINAL\\_010306.doc](#)

### **City Parks Alliance**

Comprehensive research gathering data about why parks matter.

**Video:** [City Parks: America’s New Infrastructure - Health & Social Benefits - YouTube](#)

Citations:

1. Jim Robbins, “Ecopsychology: How Immersion in Nature Benefits Your Health,” Yale Environment 360 (January 9, 2020).
2. U.S. Department of Agriculture, Forest Service 2018. Urban nature for human health and well-being: a research summary for communicating the health benefits of urban trees and greens space. FS-1096. Washington, DC. 24 p.
3. National Recreation and Park Association, Parks and Improved Mental Health and Quality of Life Fact Sheet.
4. Green Ribbon, “How Parks Affect Mental Health, Backed By Science.”
5. University of Vermont, “City parks lift mood as much as Christmas: The greener the greenspace, the happier and less self-absorbed people are,” ScienceDaily (August 20, 2019).
6. University of East Anglia, “It’s official--spending time outside is good for you,” ScienceDaily (July 6, 2018).
7. National Recreation and Park Association, Parks and Chronic Disease Management Fact Sheet.
8. National Recreation and Park Association, Parks and Healthy Kids Fact Sheet.
9. Culture of Health Blog, “6 Reasons Why Parks Matter for Health,” (August 6, 2016).
10. Environmental Epidemiology, “A Review of the Health Benefits of Greenness,” (April 9, 2015).
11. Erica Gies, “The Health Benefits of Parks,” published by the Trust for Public Land (2006).
12. City Parks Alliance, “City Parks are a Smart Investment for America’s Health, Economy & Environment.”

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