

Green Space, Health & Well-Being

A Synthesis of Systematic Reviews

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Why does green space matter?

Green space developments have become increasingly popular as one way to address and improve a number of health conditions. While there is a general consensus that “green=good,” there are a limited number of systematic reviews to assess the health impacts of these interventions. This document provides a summary of existing findings and identifies opportunities for continued research.

How is green space defined in research?

Green space is defined in many ways, depending on the discipline(s) conducting the research, the types of green space being observed as well as location (e.g., urban vs. rural areas). The Environmental Protection Agency provides this definition of green space [1]:

Metrics used to assess proximity and quality of green spaces:

- [Normalized Difference Vegetation Index \(NDVI\)](#) [2]
- [Tree canopy](#) [3]
- [ParkScore](#) [4]
- [Walkability Index](#) [5]

“Green space is an open space of land that is partly or completely covered with grass, trees, shrubs, or other vegetation. Green space includes parks, community gardens, and cemeteries.”

Green space can be...

- *Planned* (e.g. parks, gardens, and street trees) and *unplanned* (e.g. forested areas) [6]
- *Private* (e.g. home backyards) and *public* (e.g. playgrounds and community gardens) [7]

What's in a name?

Given the diversity of the meaning of green space, it's important to begin a project or research study by creating your own definition of green space using criteria that are both qualitative (e.g. amenities, ownership, and perceptions) and quantitative (e.g. tree coverage, biodiversity, and access) [8].

Community Garden



Tree Canopy



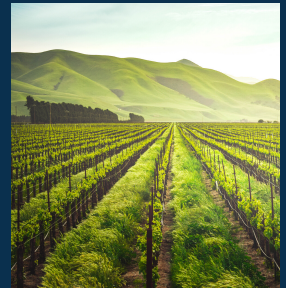
Urban Green Space



Open Park



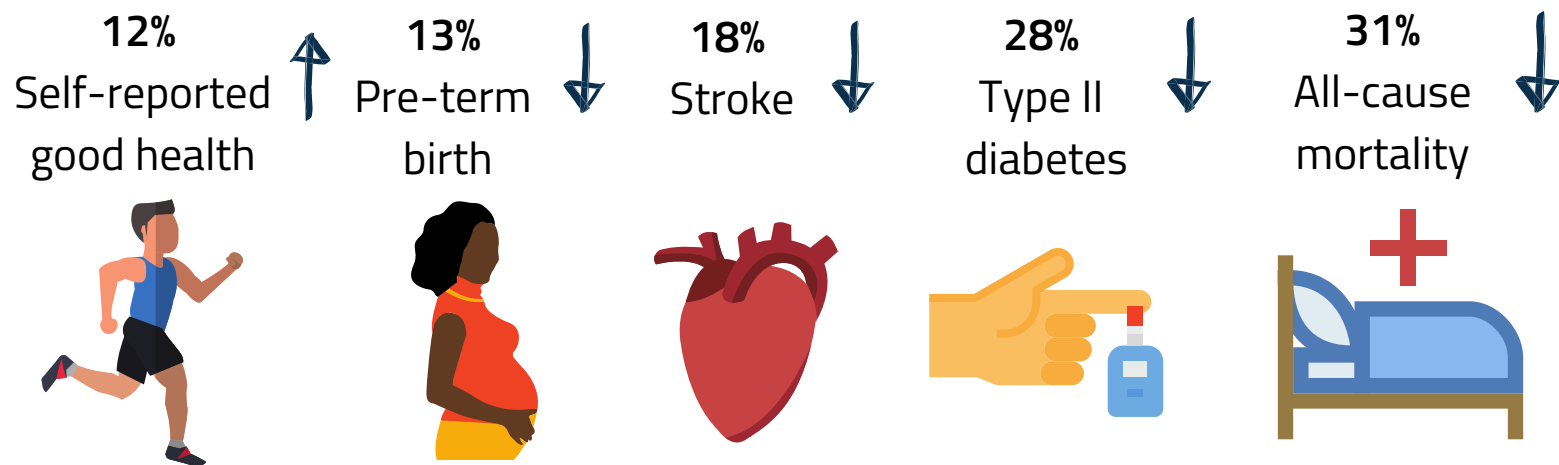
Agriculture



What are the main findings about the impact green space has on health?

In our assessment of nine systematic reviews [6, 9-16], we found evidence that exposure to green space is associated with positive health outcomes in both adults and children. Specifically, there is evidence to support associations between green space exposure and decreased crime [9], BMI [10], diastolic blood pressure, heart rate, type II diabetes, stroke [11], emotional and behavioral problems in children [12], and cardiovascular [13] and all-cause mortality [13, 14].

Health outcomes associated with green space exposure:



Twohig-Bennett & Jones, 2018 [11]

What are the health benefits and risks of green space?

Benefits:

1. Provides space for physical activity, social interaction and cohesion, and improves community perception [10, 17-20]
2. Reduces air pollution, noise, and heat [19]
3. Reduces stress and improves relaxation and restoration [23]

Risks:

1. Promotes space for crime [18, 21]
2. Enhances exposure to health threatening environmental exposures (e.g. pesticides, excessive UV light, animal wastes, allergens and other environmental triggers) [22]
3. Increases risk for vector-borne diseases such as Lyme disease or dengue [23]

Opportunities for future research:

1. Meta-analyses of green space and health using a standardized measurement for green space.
2. Longitudinal intervention studies to assess the effectiveness of exposure to green spaces over time including various types of green space (e.g. residential, school, or work environments) and different effects of green space exposure (e.g. quality, perceptions, use, and amount of time spent).
3. Evaluation of green space related policies that may have sustainable public health benefits.
4. Further assessment on the role of socioeconomic factors on green space access.

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