



Epi Data Brief

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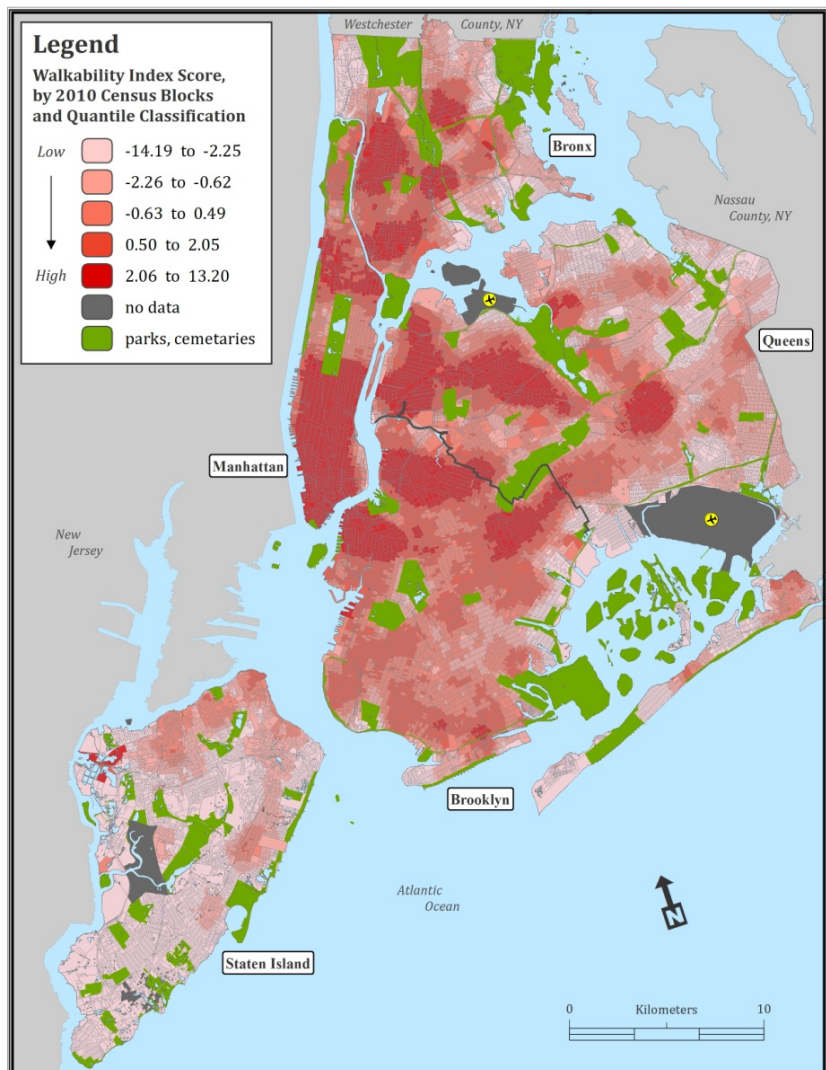
Neighborhood Walkability and Physical Activity in New York City

Improving neighborhood walkability is one way of promoting physical activity through walking. In 2011, the New York City Department of Health and Mental Hygiene conducted the Physical Activity and Transit (PAT) Survey to understand the patterns of physical activity of adult New Yorkers. Data from the PAT survey were used to evaluate whether neighborhood built environment characteristics are associated with physical activity.

What is neighborhood walkability?

- Neighborhood walkability refers to the extent to which neighborhood design supports walking. This report uses a walkability index developed by Columbia University's Built Environment and Health Research Group to measure neighborhood walkability. The walkability index includes five components identified in the urban planning literature as promoting walking:
 1. Residential density
 2. Intersection density
 3. Land use mix for five types of land use (residential, office, retail, education and entertainment)
 4. Subway stop density
 5. The ratio of retail building floor area to retail land area
- Walkable neighborhoods have high intersection density; high residential density; a mix of residential, commercial, recreational and institutional land uses; few retail stores set back behind parking lots; and good access to public transit.

New York City walkability by Census block, 2011



Source: Columbia University Built Environment and Health Research Group

Data Sources

(1) NYC PAT Device Follow-Up: The New York City (NYC) Physical Activity and Transit Survey (PAT) 2011 combined an extensive self-reported questionnaire with objective measures, including accelerometer and Global Positioning System (GPS) data, to understand patterns of physical activity. NYC PAT Device Follow-Up included valid accelerometer data on 679 New Yorkers aged 18 and older. This research was made possible by funding from the Department of Health and Human Services.

(2) NYC Walkability Scale: The New York City Walkability Scale was created by Columbia University's Built Environment and Health Research Group (<http://BEH.columbia.edu>). Walkability data for New York City are available upon request.

Neighborhood walkability varies across the five New York City boroughs

Overall, New York City scores high on all of these dimensions that urban planners use to describe walkable cities. In fact, New York City is one of the most walkable and least car dependent cities in the country; according to Census data, 57% of households in New York City do not have cars. However, within the City, neighborhoods vary in how walkable they are and Columbia University's Built Environment and Health Research Group has developed an index that measures the relative walkability of Census blocks across New York City.

- Census blocks in New York City range in walkability index score from -14.2 to 13.2. This particular walkability index was specifically designed to describe the range of neighborhood walkability in New York City, with zero representing an approximate average for the City as a whole.
- Census blocks in Manhattan had the highest average walkability score among the boroughs. Zip code 10280, near Battery Park on the southern tip of Manhattan, had the highest average walkability index score in Manhattan.
- Census blocks in Staten Island had the lowest walkability score, with zip code 10302 near the Bayonne Bridge in Elm Park, having the lowest walkability index score in Staten Island.

Mean Walkability Index scores of Census blocks, by borough

(Range -14.19 to 13.19)

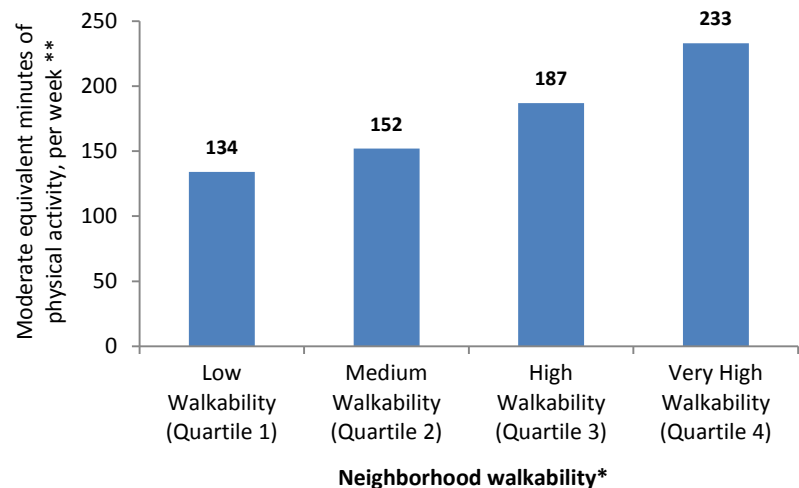
New York City	0.05
Brooklyn	0.89
Bronx	0.14
Manhattan	4.23
Queens	-0.58
Staten Island	-3.04

Source: Columbia University Built Environment and Health Research Group

Higher neighborhood walkability is associated with greater physical activity

- Physical activity levels were measured by accelerometers, an objective measure of physical activity.
- Participants in the PAT study were quite active with more than 70% of participants engaging in at least 150 "moderate equivalent minutes" of physical activity per week.
- However, there was a significant amount of variability in activity levels across participants.
- Physical activity levels were substantially higher in people living in higher-walkability neighborhoods.
- 2010 Census data show that a total of 2,804,410 residents of New York City (34%) live in Census blocks that score in the top quartile of the walkability index and 1,022,942 residents (13%) live in Census blocks that score in the lowest quartile.

Mean weekly minutes of physical activity by neighborhood walkability quartile, New York City



*Note 1: Quartile 1 neighborhoods are the least walkable, Quartile 4 are the most walkable. Estimates for Quartile 1 and Quartiles 3 and 4 are significantly different.

**Note 2: 'Moderate equivalent minutes' are a measure of total weekly minutes of physical activity based on accelerometer measurement; each moderate minute of activity counts for one minute, while each vigorous minute of activity counts for two minutes.

Sources: Columbia University Built Environment and Health Research Group, NYC Physical Activity and Transit Survey Device Follow-Up 2011

- Participants who lived in very high walkability neighborhoods were more likely to be physically active than those living in low walkability neighborhoods, averaging 100 more minutes of physical activity per week. This difference translates to 690 versus 1200 calories burned per week for an average weight New Yorker living in a low walkability neighborhood compared to a very high walkability neighborhood, a large enough difference to impact obesity rates.

References

1. Physical Activity Guidelines Advisory Committee. Physical Activity Guidelines Advisory Committee Report, 2008. Washington, DC: U.S. Department of Health and Human Services, 2008. <http://www.health.gov/paguidelines/>
2. Freeman, L., Neckerman, K., Schwartz-Soicher, O., Quinn, J., Richards, C., Bader, MD., Lovasi, G., Jack, D., Weiss, C., Konty, K., Arno, P., Viola, D., Kerker, B., Rundle, A. Neighborhood walkability and active transport (walking and cycling) in New York City. Journal of Urban Health, September 2012.

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For information on NYC's Active Design Guidelines and new Sidewalk Supplement, visit:

www.nyc.gov/adg and http://www.nyc.gov/html/dcp/html/sidewalk_experience/index.shtml

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