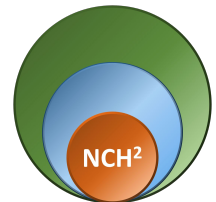


# The Health Benefits of Trees

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Northwestern University  
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September 30 , 2020  
GreenTown Conference



# Take home messages

- Science shows time in nature is essential for our health
- Science reveals the many mechanisms for this
- Science reveals inequities of access to nature correspond to known health disparities
- Nature can help us cope with the COVID-19 pandemic

# Perspectives of Nature



## Features untouched by humans,

- ◆ Forests
- ◆ Plants and animals
- ◆ Still and running water,



## Features produced by humans

- ◆ Indoor plants
- ◆ Parks
- ◆ Gardens



[www.a-v-designs.com](http://www.a-v-designs.com)

# Science Speaks

- Kondo, M. C., J. M. Fluehr, T. McKeon and C. C. Branas (2018). "Urban Green Space and Its Impact on Human Health." Int J Environ Res Public Health **15**(3).
- South, E. C., M. C. Kondo and N. Razani (2020). "Nature as a Community Health Tool: The Case for Healthcare Providers and Systems." Am J Prev Med.
- Wolf, K. L., S. T. Lam, J. K. McKeen, G. R. A. Richardson, M. van den Bosch and A. C. Bardekjian (2020). "Urban Trees and Human Health: A Scoping Review." Int J Environ Res Public Health **17**(12).

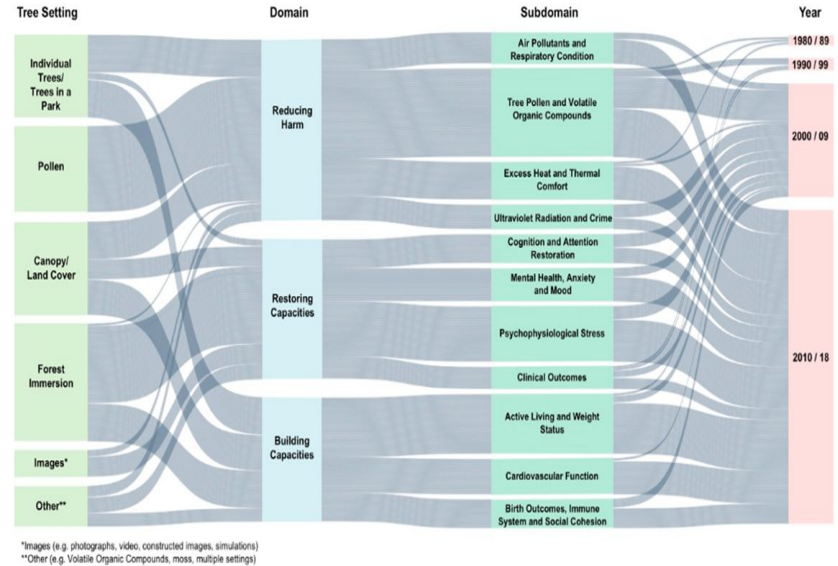
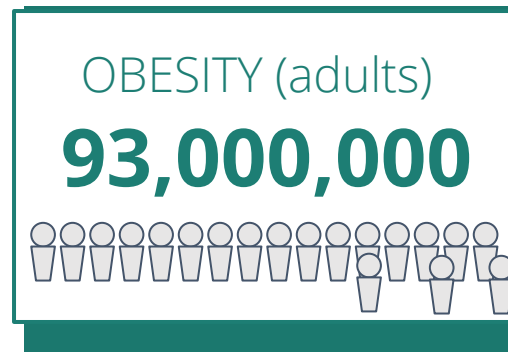
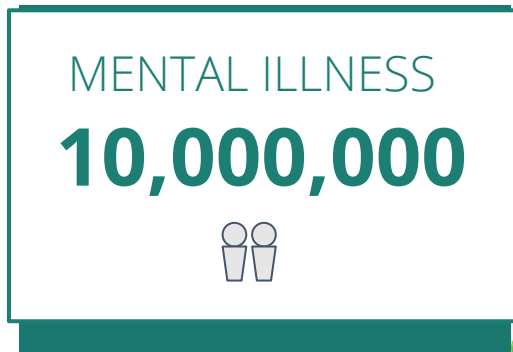
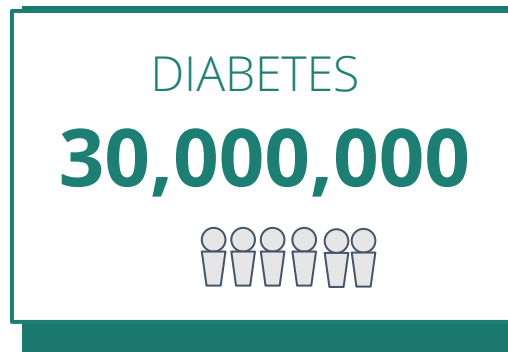
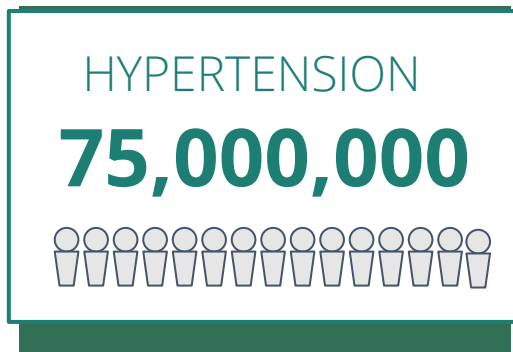


Figure 2. Scoping review of city trees and human health—synthesis of 201 studies.

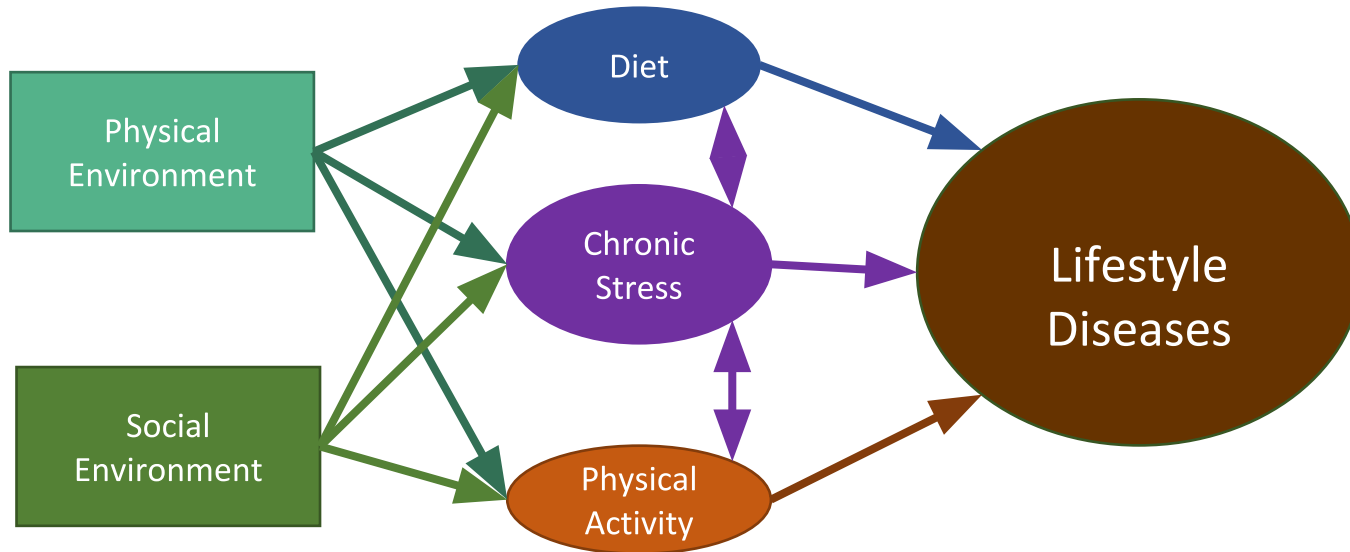
Wolf et al. 2020 Int J Environ Res Public Health

# Epidemic of Chronic Disease

 = 5 million people



# Linking social and physical environment to non-communicable “lifestyle” diseases



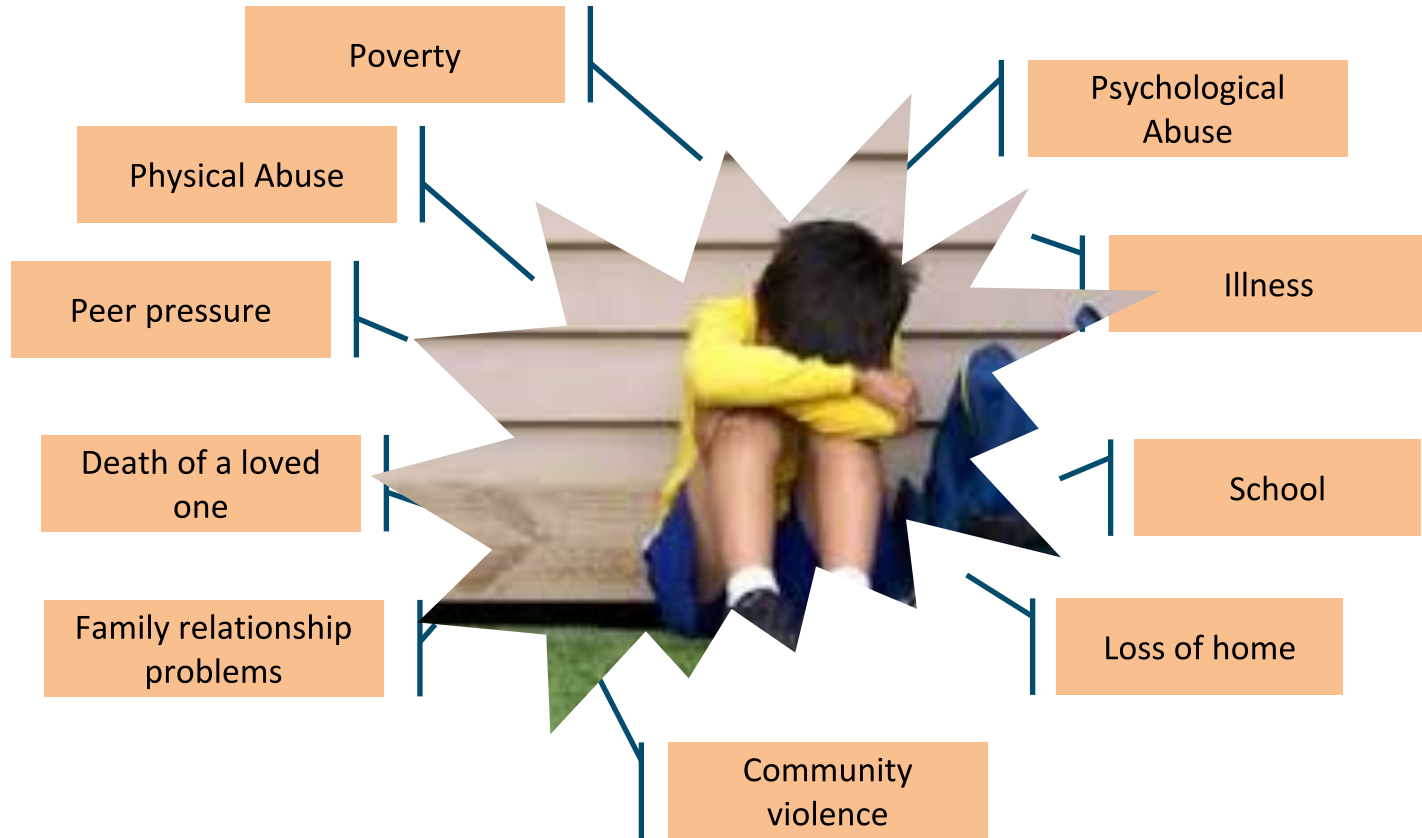
After: Kumanyika et al. 2002; Set 2012;  
Homer et al. 2006

# Zip code better predictor of health than genetic code



Harvard, T.J. Chan School of Public Health, 2014

# Chronic Stress





# How to Spot Income Inequality From Space? Count the Trees

June 10, 2012, by [Theresa Riley](#)



Hyde Park:

Life expectancy: 82 yrs

Median household income: \$48,663



Woodlawn:

Life expectancy: 75 yrs

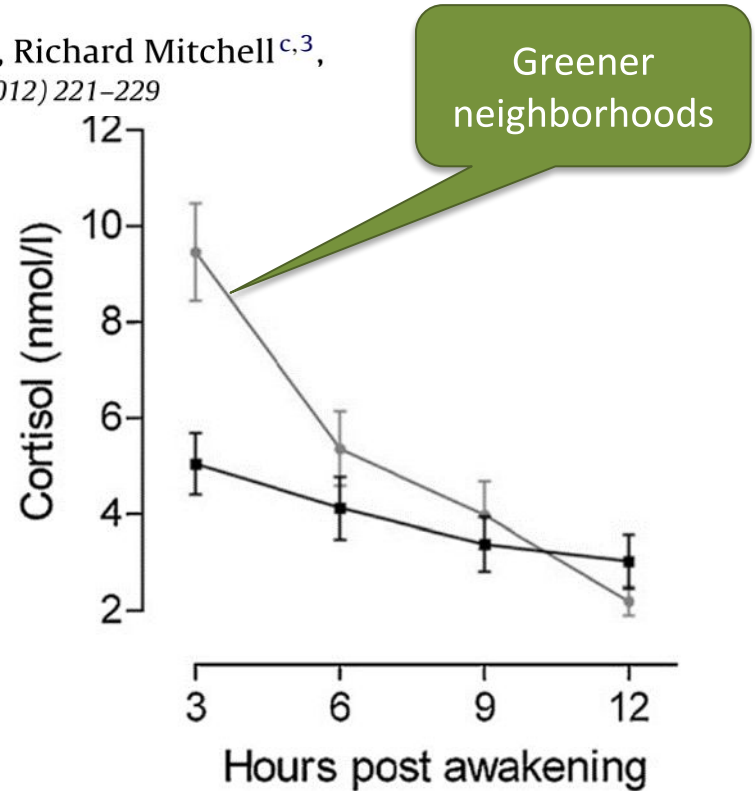
Median household income: \$23,986

<http://billmoyers.com/2012/06/10/how-to-spot-income-inequality-from-space-count-the-trees/>

# More green space is linked to less stress in deprived communities: Evidence from salivary cortisol patterns

Catharine Ward Thompson<sup>a,\*</sup>, Jenny Roe<sup>b,1</sup>, Peter Aspinall<sup>b,2</sup>, Richard Mitchell<sup>c,3</sup>,  
Angela Clow<sup>d,4</sup>, David Miller<sup>e,5</sup> *Landscape and Urban Planning* 105 (2012) 221–229

- Flatter cortisol slopes indicate
  - Increased risk of
    - Poor mental health
    - Poor physical health
  - Exposure to chronic psychosocial stress
    - See work by NU Faculty Emma K. Adam, Greg Miller, Edith Chen, and their colleagues.



# Greenspace reduces risk of Type 2 Diabetes

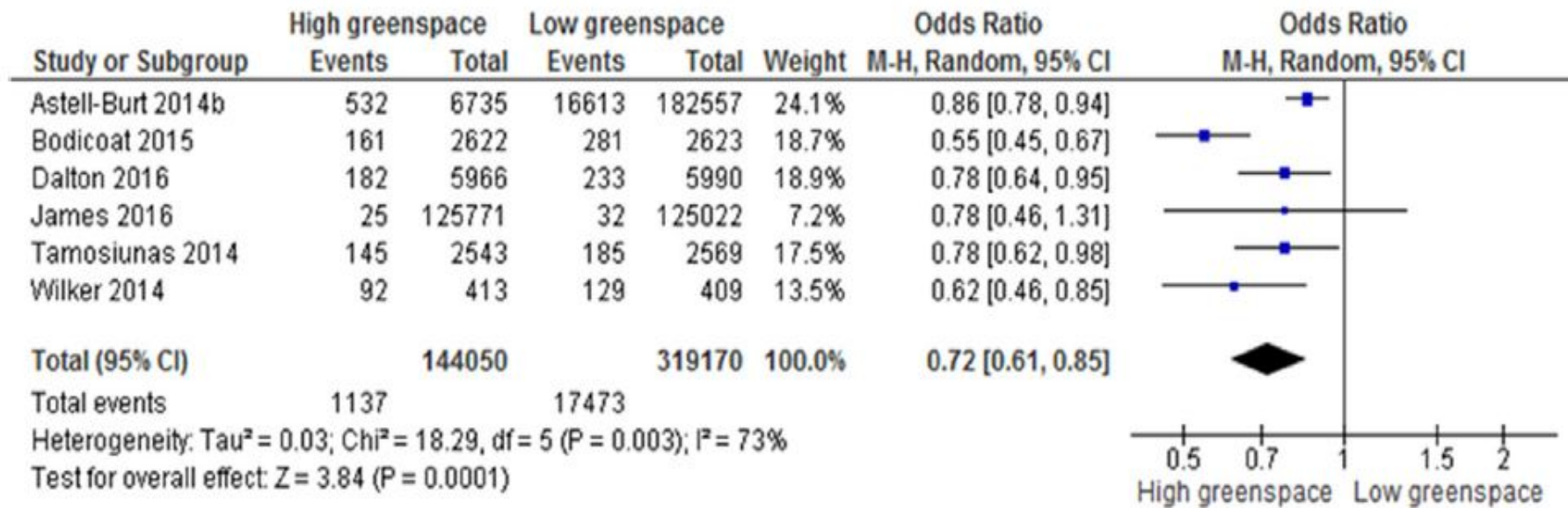


Fig. 2. Meta-analysis of the effects of greenspace exposure on incidence of type II diabetes.

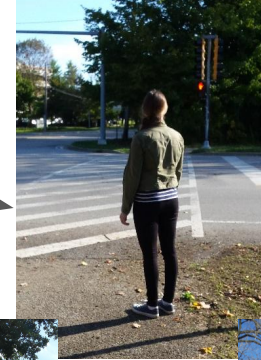
Twohig-Bennett, C. and A. Jones (2018). Environmental Research 166: 628-637.

# Walk Locations

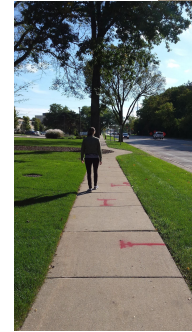
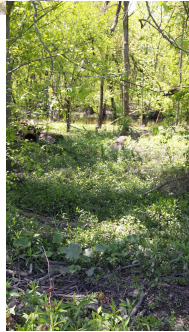
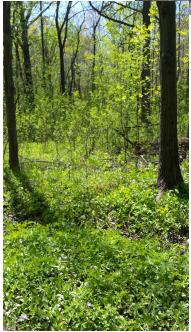
Forest path



Old Orchard Rd.

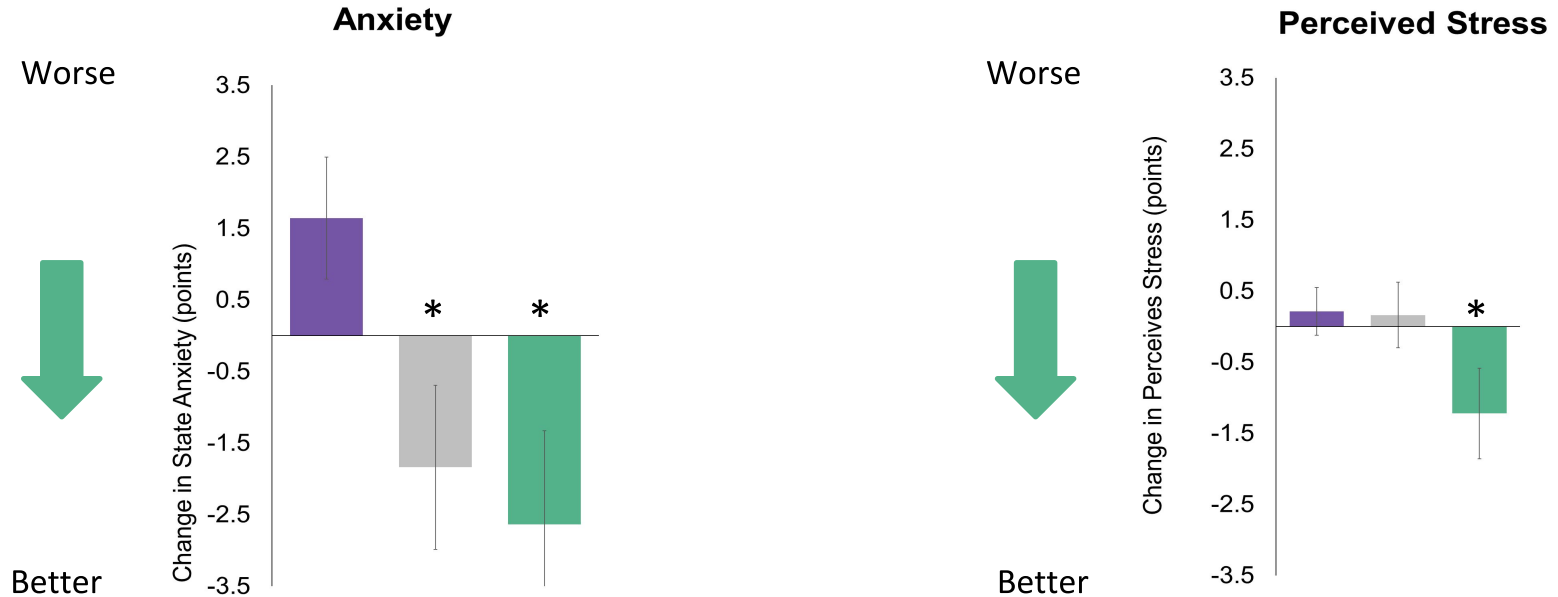


50 Minute Walks



# Forest Walks Reduced Stress and Anxiety

Control (no walk) Sidewalk Forest

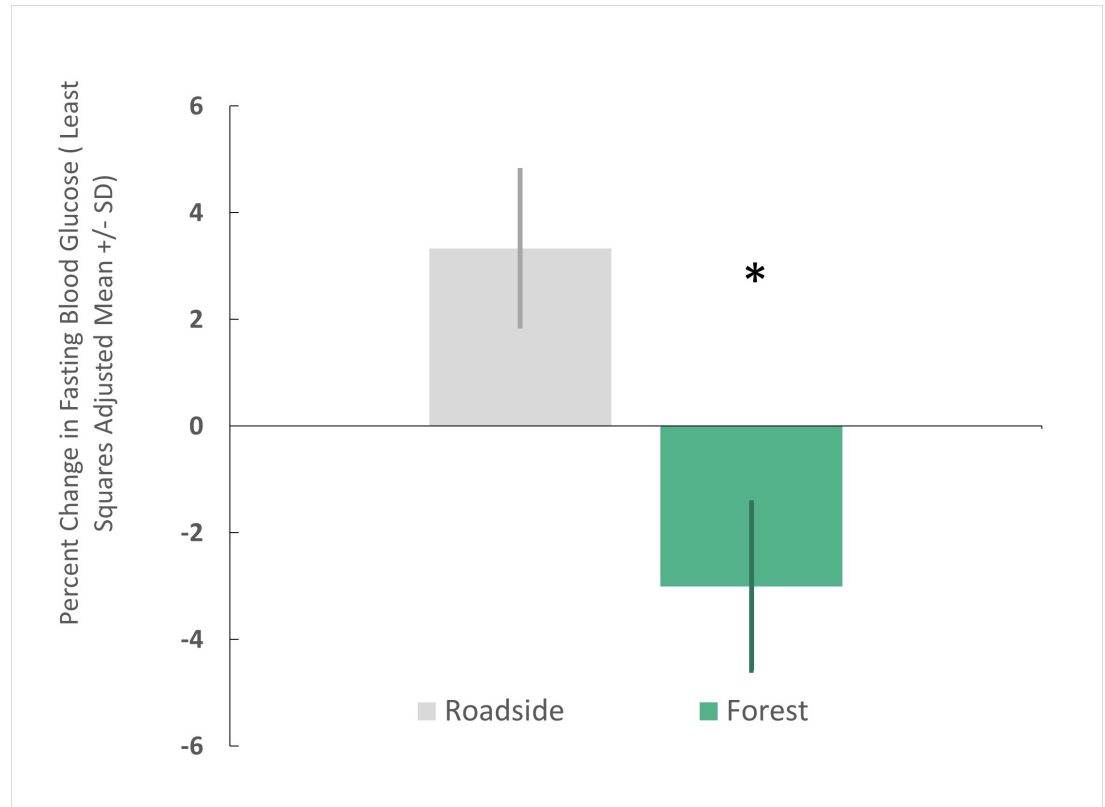


Koselka, et al. (2019). Int J Environ Res Public Health **16**(22).

# Forest Walks Reduced Fasting Blood Glucose

(Horton et al. unpublished)

- Participant characteristics
  - N = 38 (20 female)
  - Age ( $22.9 \pm 4.6$  yr.; range 18-35)
  - % body fat
    - Women  $24.02 \pm 7.04$
    - Men  $16.6 \pm 6.97$
  - Initial Fasting Blood Glucose:
    - $91.0 \pm 18.5$  mg/dl



# The COVID-19 Pivot

April 10, 2020

## The Mental Health Consequences of COVID-19 and Physical Distancing

The Need for Prevention and Early Intervention

Sandro Galea, MD<sup>1</sup>; Raina M. Merchant, MD<sup>2</sup>; Nicole Lurie, MD<sup>3</sup>

» Author Affiliations | Article Information

*JAMA Intern Med.* Published online April 10, 2020. doi:10.1001/jamainternmed.2020.1562

## Parks are essential — especially during the coronavirus pandemic

During the COVID-19 pandemic, parks should be celebrated, protected, and ultimately leveraged to support public health.

By Julia Africa, Cheri Ruane, Gary Hilderbrand, and Chris Reed Updated May 6, 2020, 4:51 a.m.



Boston Globe 5 May 2020

## Coping with the pandemic's hidden mental health toll



Kim Hart

Axios. 7 May 2020 <https://www.axios.com/coronavirus-mental-health-toll-ab771036-8424-4011-b86e-fa0029a1ca96.html>

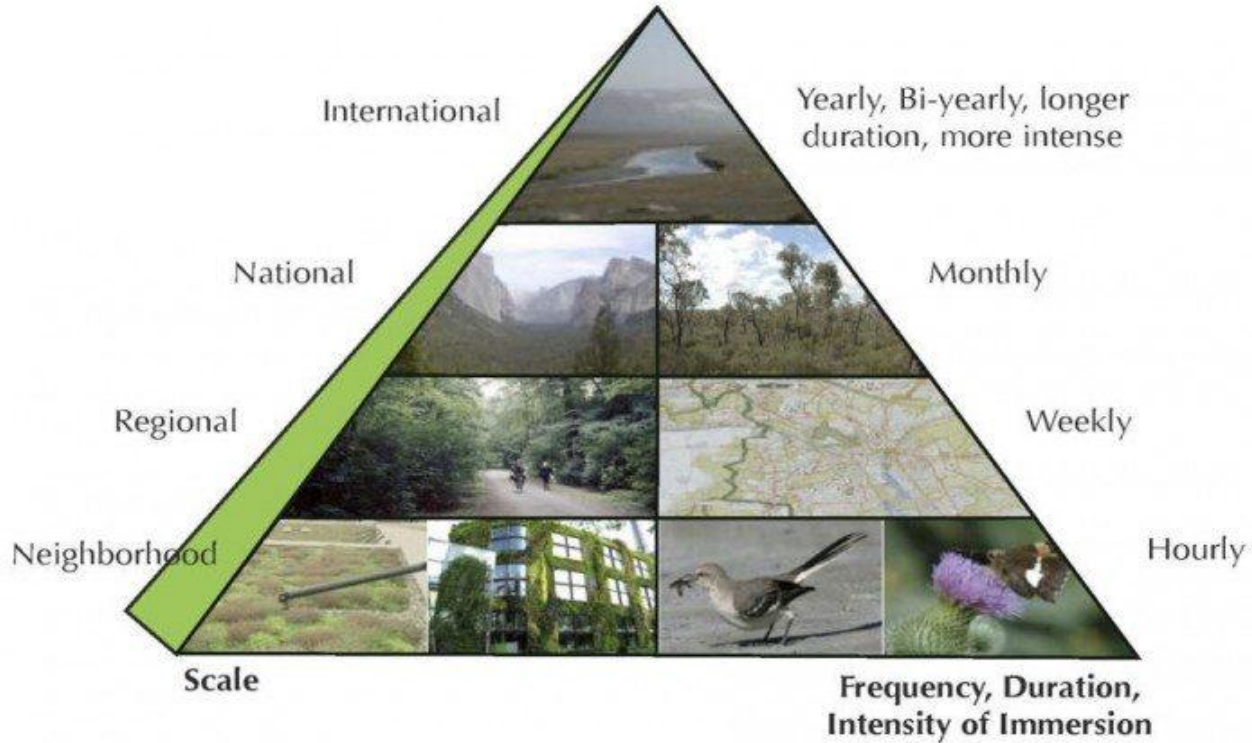
# Commentary: Take a hike! Getting outside will help us through this pandemic



By TERESA H. HORTON AND SUZANNE BARTLETT-HACKENMILLER  
CHICAGO TRIBUNE | MAR 20, 2020 | 3:59 PM



# THE NATURE PYRAMID



*Concept by: Tanya Denckla-Cobb*  
University of Virginia, School of Architecture.



# Access to nature is a necessity

Not an amenity

Contact me at  
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Join Nature, Culture, and Human Health

Email: [nch2.Chicago@gmail.org](mailto:nch2.Chicago@gmail.org)

NCH2.org

