Metro Nature Services
City Trees, Urban Greening & Health

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Research Reviews

Green Cities: Good Health

Metro nature - including trees, parks, gardens, and natural areas - enhance quality of life in cities and towns. The experience of nature improves human health and well-being in many ways. Nearly 40 years of scientific studies tell us how. Here’s the research ...

RESEARCH THEMES

- Livable Cities
- Place Attachment & Meaning
- Community Building
- Community Economics
- Social Ties
- Crime & Fear
- Reduced Risk
- Wellness & Physiology
- Active Living
- Healing & Therapy
- Mental Health & Functioning

www.greenhealth.washington.edu

on-line resource
summaries complete: soon!
next? economic valuation
Local Economics

Trees in cities are not grown and managed for products that can be bought and sold on markets, but they do provide many intangible services and functions! This article serves two purposes. First, it introduces valuation methods that are used to convert intangible benefits to dollar sums. Then, it shows how nonmarket valuations can support local decision-making.

Fast Facts

- The presence of larger trees in yards and as street trees can add from 3% to 15% to home values throughout neighborhoods.
- Averaging the market effect of street trees on all house values across Portland, Oregon yields a total value of $1.35 billion, potentially increasing annual property tax revenues $15.3 million.
- A study found 7% higher rental rates for commercial offices having high quality landscapes.
- Shoppers claim that they will spend 9% to 12% more for goods and services in central business districts having high quality tree canopy.
- Shoppers indicate that they will travel greater distance and a longer time to visit a district having high quality trees, and spend more time there once they arrive.
Human Dimensions of Urban Forestry and Urban Greening

featuring research on peoples' perceptions and behaviors regarding nature in cities

Nature and Consumer Environments
Research about how the urban forest influences business district visitors.

Trees and Transportation
Studies on the value of having quality landscapes in urban roadways.

Civic Ecology
Studies of human behaviors and benefits when people are active in the environment.

Policy and Planning
Integrating urban greening science with community change.

Urban Forestry and Human Benefits
More resources, studies and links...

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www.naturewithin.info
to be continued . . . .

the importance of
trees and nature in everyday life

from cradle to grave,
the entire human life course!
Urban Forests and Newborns

the natural environment may affect pregnancy outcomes . . .

10% increase in tree-canopy cover within 50m of a house

= lower number of low weight births
(1.42 per 1000 births)

*Donovan et al., Health & Place, 2011*
Nature & Psych Development
children’s play & imagination
http://www.treeclimbing.jp/
physically disabled & tree climbing!
recreational tree climbing – youth therapy
School & Learning

![Image of a library with people studying]
Green High School Campuses

- cafeteria & classroom window views with greater quantities of trees and shrubs
- positively associated with:
  - standardized test scores,
  - graduation rates
  - %s of students planning to attend a four-year college
  - fewer occurrences of criminal behavior

Matsuoka. 2010. Landscape & Urban Planning
Trees & Crime Reduction

- trees in the public right of way are associated with lower crime rates
  - smaller, view-obstructing trees are associated with increased crime
  - larger trees are associated with reduced crime

Donovan & Prestemon. 2012. *Environment and Behavior*
EAB Tree Loss & Public Health

1990 to 2007, 1,296 counties in 15 states infected areas vs. no bugs
15,000 more deaths from cardiovascular disease
6,000 more deaths from lower respiratory disease
controlled for demographic, human mortality, and forest health data at the county level

Toledo, Ohio in 2006, pre EAB

photos: Dan Herms, Ohio State University
Shinrin-yoku  Forest Bathing

- extended forest walks
  - reduced ‘fight or flight’ nervous system activity
  - lower cortisol – a stress indicator
  - increased immune function
  - lower pulse rate & blood pressure
Physical Activity & Depression Reduction

- Review of 13 high quality studies
  - exercise recommended for mild to moderate depression
  - associated meditation and mindfulness are important
  - people who are willing & motivated

parks, recreation, active transit
make room for pedestrians
Effects of nature window view on recovery from surgery (Roger Ulrich, 1984)

- Shorter stays
- Less pain
- Fewer minor complications
- Better emotional well-being
PAIN CONTROL DURING BRONCHOSCOPY

80 patients undergoing bronchoscopy

40 viewed a pristine meadow scene, heard bubbling brook sounds

40 controls
PAIN CONTROL DURING BRONCHOSCOPY

80 patients undergoing bronchoscopy

40 viewed a pristine meadow scene, heard bubbling brook sounds

29.3% with “very good” or “excellent” pain control

40 controls

20.5% with “very good” or “excellent” pain control

a big leap!
public green spaces that please the eye, nourish the soul, and help renew communities
Design Elements

NatureSacred :: Open Spaces Sacred Places
Mindfulness/Meditation Training

- meta analysis; clinical/non situations
- focus on moment-to-moment experience and mental awareness
- more veridical perception (reality check)
- reduce negative affect
- improve vitality and coping
- medical symptoms & sensory pain

Mindfulness/Meditation Training

- healthy workplace employees
- 8 week mindfulness training
- brain electrical activity – positive affect
- brain activation – reduce stress event response
- more antibodies after influenza vaccine = better immune function

Davidson et al. 2003. Alterations in Brain and Immune Function Produced by Mindfulness Meditation. Psychosomatic Medicine
NatureSacred :: bench journals

> 10 years
> 100 gardens
> 10,000 journal entries
mindfulness :: journal analysis

Summary

- 40 years of evidence for human health & wellness provided by nearby nature
- future research?
  - innovative measures
  - how much time in nature is needed?
  - dosage? duration? lifecycle?
- appeal to non-traditional partners (medicine, public health, education)
trees in the background

nearby nature for human health & well-being
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