Nearby Nature & Human Well-Being: research and evidence

Kathleen Wolf, Ph.D.
Research Social Scientist

University of Washington
College of the Environment

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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

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

Green & Crime Reduction

- vacant lot greening in Philadelphia (4 sections)
  - consistent reductions in gun assaults across 4 sections
  - consistent reductions in vandalism in 1 section

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
2009, EAB in neighborhood

photos: Dan Herms, Ohio State University

What is the Evidence?

Urban Greening & Nearby Nature
Human Health, Welfare & Function
Finding that study . . . . .

Research Reviews

Green Cities: Good Health

Micro 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
- Crime & Fear
- Health & Wellbeing
- Social Ties
- Economic Growth
- Community Building
- Green Roofs & Walls
- Water Quality
- Urban Forestry
- Green Infrastructure
- Active Living
- Healing & Therapy
- Mental Health & Functioning

on-line resource
summaries complete: soon!

www.greenhealth.washington.edu
Research Review and Summaries

Sponsors:
University of Washington
USDA Forest Service, U&CF Program
NGO partners

thanks to U of WA students:
Katrina Flora
Mary Ann Rozance
Datasheet for each theme

- research highlights
- one page briefing
- print & share

Urban Green :: Human Health & Well Being

> 2,400 articles
Eco-Health Relational Browser
Environmental Protection Agency

www.epa.gov/research/healthscience/browser/
Eco–Health Relationship Browser Bibliography

To show or hide an entry's abstract, click on the citation. Click blue citations to link to website source.

A


Urban Greening & Health Evidence Framework

Abraham Maslow Hierarchy of Needs
Urban Nearby Nature
Aging & Health

[Image of group of elderly individuals]

[Image of historical illustration]
a walk in the park!

Nature, Human Health & Walkable Neighborhoods

- Environments: Neighborhood Streets (Tokyo)
  - tree-lined
  - parks

- Outcomes: Elderly People & Walking
  - less illness
  - lower mortality rate over 5 years

Takano, Nakamura, Watanabe. 2002.
Journal of Epidemiology & Community Health
Physical Activity & Depression Reduction

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

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

Elders & Horticulture Therapy
方法
実験1:
課題①: 2種の土を混ぜる
課題②: 土を鉢に入れる
課題③: 花を鉢に植える

Dr. Masahira Toyoda;
University of Hyogo, Kobe

課題①: 15 10 20 10 20 10 20
課題②: 15 16 20 15 20 15 20
課題③: 15 20 20 20 20 20 20

図. 各課題の手順（数字は秒）

課題①
課題②
課題③

フォルダ装着位置は、額の正中位で且つ眉から1cm上とした。
hospital healing gardens:
patients; family and friends; professional staff

health care $$ savings

healing gardens
soothing
distracting
calm focus
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

Future Research & Outreach Opportunities?

Restorative Nature Beyond the City?
Evidence about the importance of ‘nearby nature’

Urban Green :: Public Health & Well Being

> 2,200 articles
Better Knowledge . . . .

• correlation to causal mechanisms
• dosage? how much, how often
• green space attributes
• multi-tasking green space; better integration with gray/green infrastructure
• benefit to cost assessments
• lifecycle & cultural specifics

Nature :: From Aesthetics to Necessity in Cities
new efforts & messages

a big leap!
TKF Foundation  Annapolis MD

public green spaces that please the eye, nourish the soul, and help renew communities

Design Elements

- Portal
- Path
- Destination
- Surround
Open Spaces Sacred Spaces

grants program – integrated design & research
Portland OR Legacy Hospitals

www.naturewithin.info