Urban Nature Experiences for Better Mental Health And Function

Kathleen Wolf, Ph.D.
Research Social Scientist

University of Washington (Seattle)
School of Environmental and Forest Sciences

10th Annual International Arboriculture Summit
November 2017
• one in six HK residents has a common mental disorder, e.g. anxiety or depression within lifetime, Hong Kong Mental Morbidity Survey
• 50% reported poor mental health, Mental Health Association of Hong Kong 2014 survey)
• 25% reported levels of stress and anxiety—250 times the global average
• 60% reported job stress
• 10% of students had thought about suicide at least once
Human Dimensions of Urban Forestry and Urban Greening

What's New?

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 roadsides.

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.

Green Cities: Good Health
human health & well-being research

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

Projects Director
Kathleen L. Wolf, Ph.D.

www.naturewithin.info
Green Cities: Good Health
www.greenhealth.washington.edu

Sponsors:
USDA Forest Service,
(U&CF Program + Pacific NW Research)
University of Washington
NGO partners

Thanks!
to U of WA students:
Katrina Flora
Mary Ann Rozance
Sarah Krueger

Research Reviews & Summaries
Science Review

nearby nature & health evidence
> 40 years
> 4,200 publications

what are the ‘stories’?
Mental Health & Function

Encounters with nearby nature help alleviate mental fatigue by relaxing and restoring the mind. Within built environments parks and green spaces are settings for cognitive respite, as they encourage social interaction and de-stressing through exercise or conversation, and provide calming settings. Having quality landscaping and vegetation in and around the places where people work and study is a good investment. Both visual access and being within green space helps to restore the mind’s ability to focus. This can improve job and school performance, and help alleviate mental stress and illness.

Fast Facts

- The experience of nature helps to restore the mind from the mental fatigue of work or studies, contributing to improved work performance and satisfaction.\(^5,9,11,13\)

- Urban nature, when provided as parks and walkways and incorporated into building design, provides calming and inspiring environments and encourages learning, inquisitiveness, and alertness.\(^4,57\)

- Green spaces provide necessary places and opportunities for physical activity. Exercise improves cognitive function, learning, and memory.\(^40,41,42\)

- Outdoor activities can help alleviate symptoms of Alzheimer's,
Mental Health + Function

quality of life
better emotion, satisfaction & outlook
vs
clinical diagnosis & symptoms
medical treatment
ADHD and nature contact

- 96 children aged 7-12 diagnosed ADD or ADHD
- Parents gave postactivity attentional functioning ratings (PAAF) –
  - 4 measures:
    - Can’t stay focused on unappealing tasks (homework or chores)
    - Can’t complete tasks
    - Can’t listen and follow directions
    - Easily distracted

Faber Taylor. 2001. Environment & Behavior
ADHD and nature contact

- 17 children aged 7-12 with diagnosed ADHD
- 20-minute guided walks
  - Park
  - Neighborhood
  - Downtown
- Pre-walk puzzles
- Post-walk cognitive test

Faber Taylor & Kuo. 2009. *Journal of Attention Disorders*
ADHD Meds
% of Americans Ages 20-44
2001 - 2010

America’s State of Mind, Medco Health Solutions, Inc
Classroom Views & Stress

Classroom Views & Stress high school student response

Fig. 2. Attention scores at the end of class activity and break (Means and SE).

Fig. 3. Physiological stress at the end of class activity and break (Mean and SE).

attention scores

stress scores
Autism in Children

543 California schools green space metrics associations:

- urban land and road density
- 10% + forest, autism prevalence 10%
- 10% + grassland, autism prevalence 10%
- 10% + average tree canopy, autism prevalence 11%
- 10% + near-road tree canopy, autism prevalence 19%

Prison Inmates :: nature videos
solitary confinement, video room/exercise option

• felt significantly calmer, less irritable, more empathetic
• committed 26% fewer violent infractions

Green Streets for Walkability

evidence of lower frustration and higher meditation when moving into the greener streets

% of U.S. Population Using Mental Health Medications
2001 vs 2010

America’s State of Mind, Medco Health Solutions, Inc
Psychiatric Drug Prescriptions
England, 1998-2010

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

Physical Exercise Intervention in Depressive Disorders.
Scandinavian Journal of Medicine & Science in Sports
Improving Depression

20 adults with major depression walk in a park setting and a built setting

- 50-minute walks one week apart
- before-after testing:
  - Mood: Positive and Negative Affect (PANAS)
  - Cognition: Backward Digit Span (BDS)

Berman et al. 2012. *Journal of Affective Disorders*

cognitive and affective improvements after walking in a nature setting
our evolution?!
Attention Restoration Theory
Rachel & Stephen Kaplan, U of MI
directed attention
fatigue . . . .
Workplace Nature & Attention Recovery

Well-being
- desk workers without view of nature reported 23% more ailments in prior 6 months

Job Satisfaction
- less frustrated and more patient
- higher overall job satisfaction and enthusiasm

the better office cubicle!

bottom line = $$ benefits of trees & nature
Biophilic Design :: buildings

integrated nature & architecture or other structures

credit: Progressive Times
Amazon
Seattle HQ, tri-sphere biodome

3.3 million square feet, three city blocks

Seattle Times
72 Hour Cabin - Sweden

stress outcomes measures: Karolinska Institute in Stockholm

police officer, taxi driver, investigative journalist
ART Design Elements

- being away
- ‘soft’ fascination
- extent
- compatibility
Mind Full, or Mindful?
constant busyness

attempted multi-tasking

‘out of balance’

Anna and Elena Balbusso, NY Times
Mindfulness/Meditation Training

- meta analysis; clinical/non situations
- focus on moment-to-moment experience and mental awareness

Results

- more veridical perception (reality check)
- reduce negative affect
- improve vitality and coping
- medical symptoms & sensory pain

Mindfulness/Meditation at Work

• healthy workplace employees
• 8 week mindfulness training

Results

• brain electrical activity – positive affect
• brain activation – reduced 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
Experience the restorative powers of nature and join us for Strolls for Well-Being, a free 10-week program offered at Bloedel Reserve. If not already a member, participants are given a temporary membership to

DAY-USE STROLLS:
Since introducing the Strolls for Well-Being program in 2014, hundreds of people have benefited from the healing effects of nature.
Nature and Mindfulness

focus
soft fascination
undirected attention

Attention Restoration Theory, Kapan & Kaplan
Nature and Creativity

http://www.jimkukral.com/
role of nature in creativity development

http://daycare.sulekha.com
Give Your Ideas Some Legs

creative test – analogy generation
conditions: sit inside, treadmill walk, walk outside, wheelchair outside

walking outside produced most novel & highest quality analogies – walking opens up free flow of ideas

Oppezzo & Schwartz. 2014. Journal of Experimental Psychology
Nature & Creative Professionals

focused interviews, Denmark
makes us more curious
supports flexible thinking
recharges directed-attention

aids 2 phases of the creative process:
Preparation phase and Incubation phase
sensory dimensions: space & serene

Plambech & Konijnendijk van den Bosch. 2015.
Urban Forestry & Urban Greening
Philosophers’ Walks

Kyoto, Japan

Heidelberg, Germany
Alzheimer’s Disease & Dementia
Provide wander gardens & horticulture therapy

- 10.5% reduction in amount of medications used in dementia facility
- 30% fewer falls, accompanied by a reduction in fall severity

Detweiler et al. 2009. American Journal of Alzheimer’s Disease and Other Dementias

www.rph.org/eden.html

Tim Lynch Associates
Summary:
Nature & Mental Health

- increased concern of medical health officials
- increasing evidence of nature benefit
- greening for health programming
- integrating urban forest goals with human community needs
Human Dimensions of Urban Forestry and Urban Greening

What's New?
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.

Green Cities: Good Health
Human health & well-being research

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

Projects Director
Kathleen L. Wolf, Ph.D.

Sponsors
Course/Session Name: International Arboriculture Summit (Hong Kong) 2017 13-15

Urban Nature Experiences for Improved Mental Health and Function

Date: Nov 15 2017

Course Code: HK 17 068

Speaker(s): Dr. Kathleen Wolf

Certified Arborist: 1
Utility Specialist: 1
Municipal

BCMA - Science: 0
BCMA - Practice: 0
BCMA -

Management: 1

TW Climber Specialist: 1
TW Aerial Lift Specialist: 1