

The Healing Power of Nature

Kurt Beil, ND, LAc, MPH

Integrative Family Medicine of Asheville

October 19, 2017

drkurt@earthlink.net

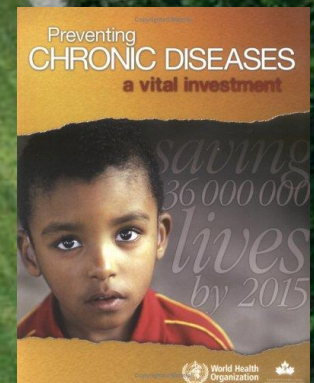


“The charm of natural scenery is an influence of the highest curative value...more than any single form of medication, to establish sound minds in sound bodies
-- Fredrick Law Olmsted, 1865

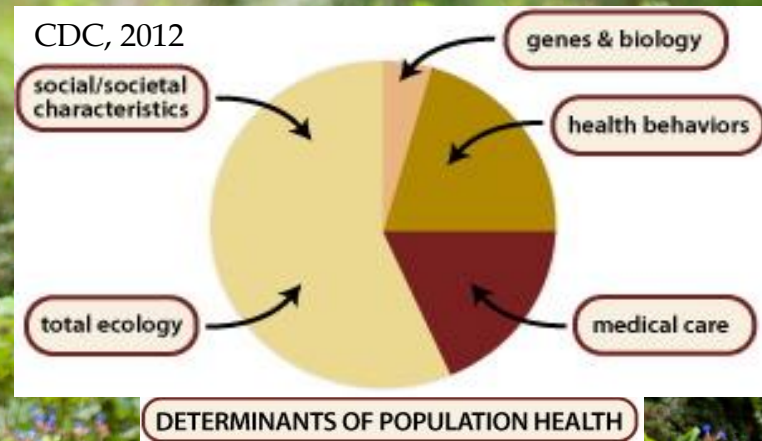
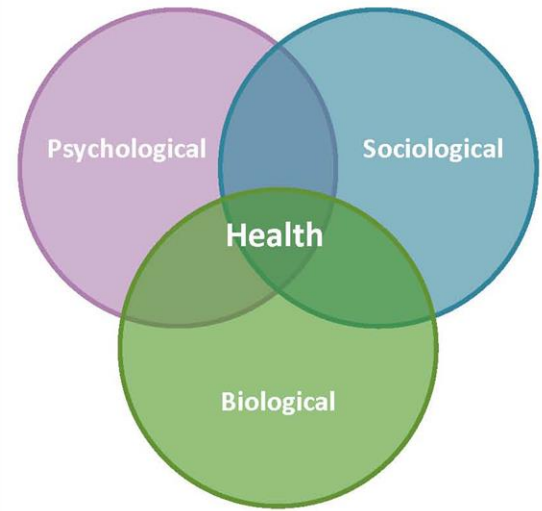


- “An almost complete disconnection from the natural world” is “a significant contributing factor to Chronic Disease”

- Preventing Chronic Disease: A Vital Investment (WHO 2005)



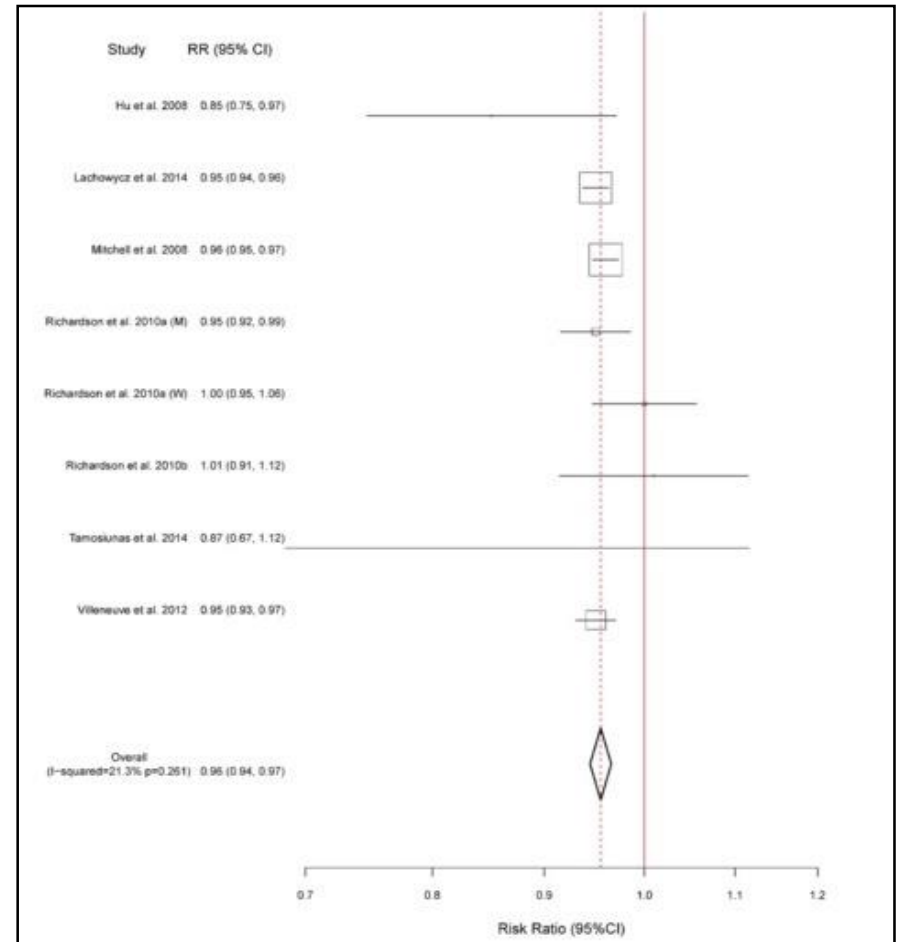
Health



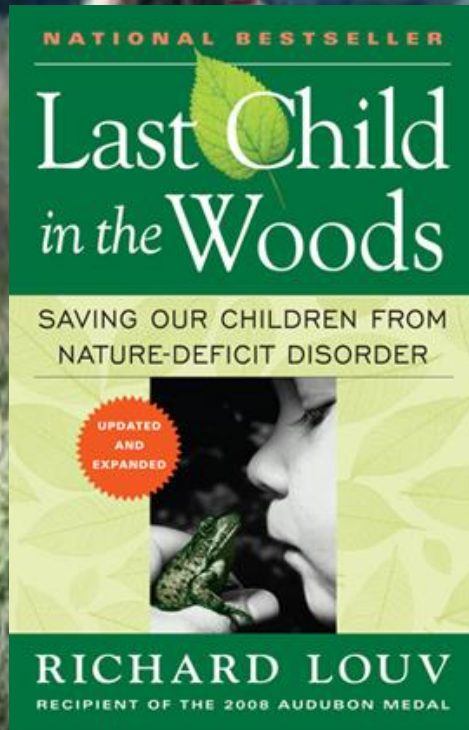
Residential green spaces and mortality: A systematic review.

Gascon M¹, Triguero-Mas M², Martínez D², Dadvand P², Rojas-Rueda D², Plasència A³, Nieuwenhuijsen MJ².

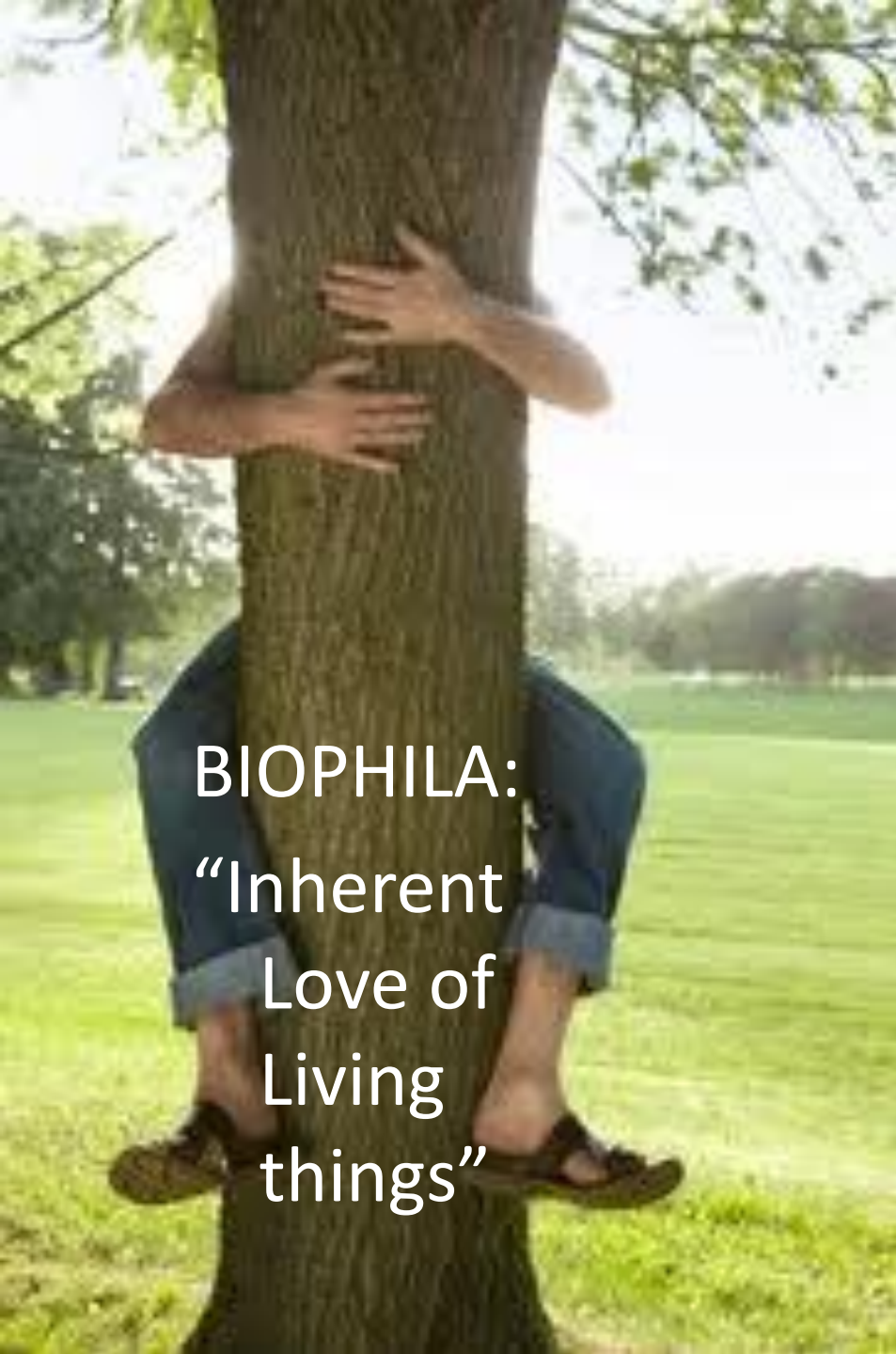
- Cardiovascular Deaths
 - 4% decreased risk if living within 1/4mile of Green Space
- n > 115 Million
- Controlled for Social-Economic Status (\$\$)
- No Lung Disease assoc.
 - Rules out air pollution



Nature Deficit Disorder

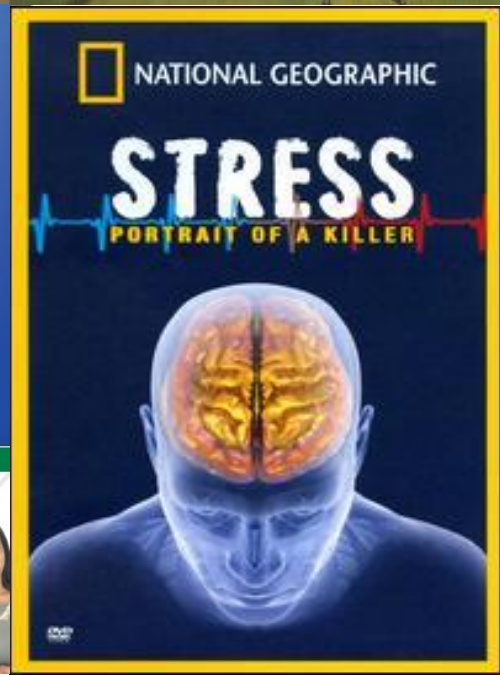
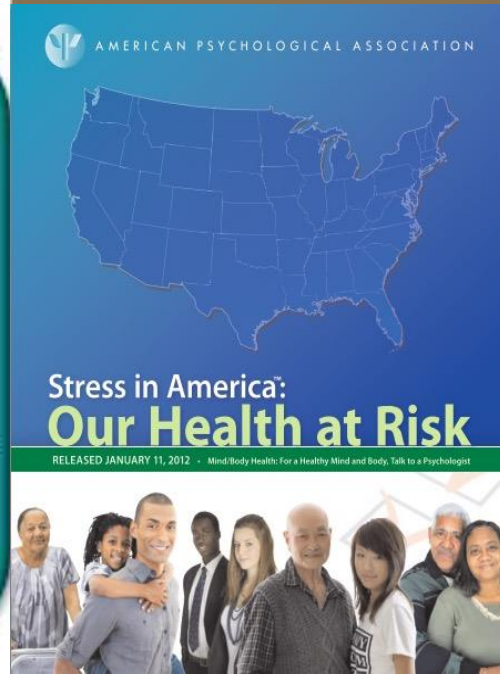
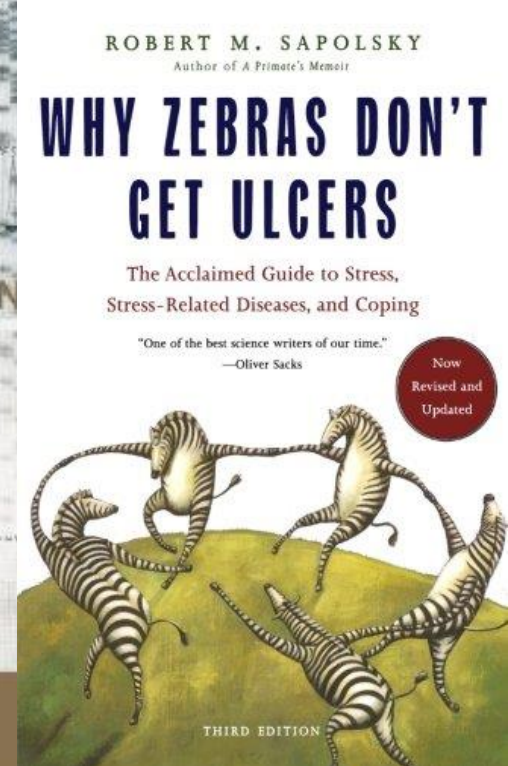
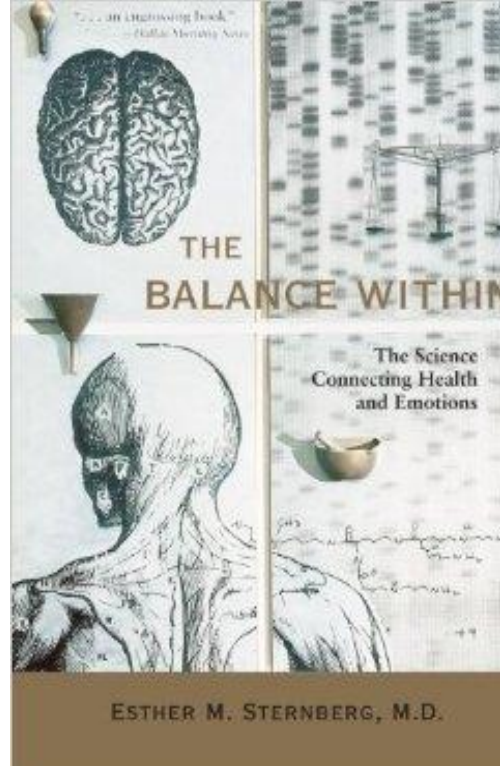


Paleo-Diet of “Vitamin N”



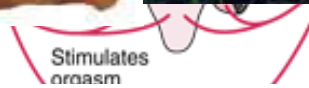
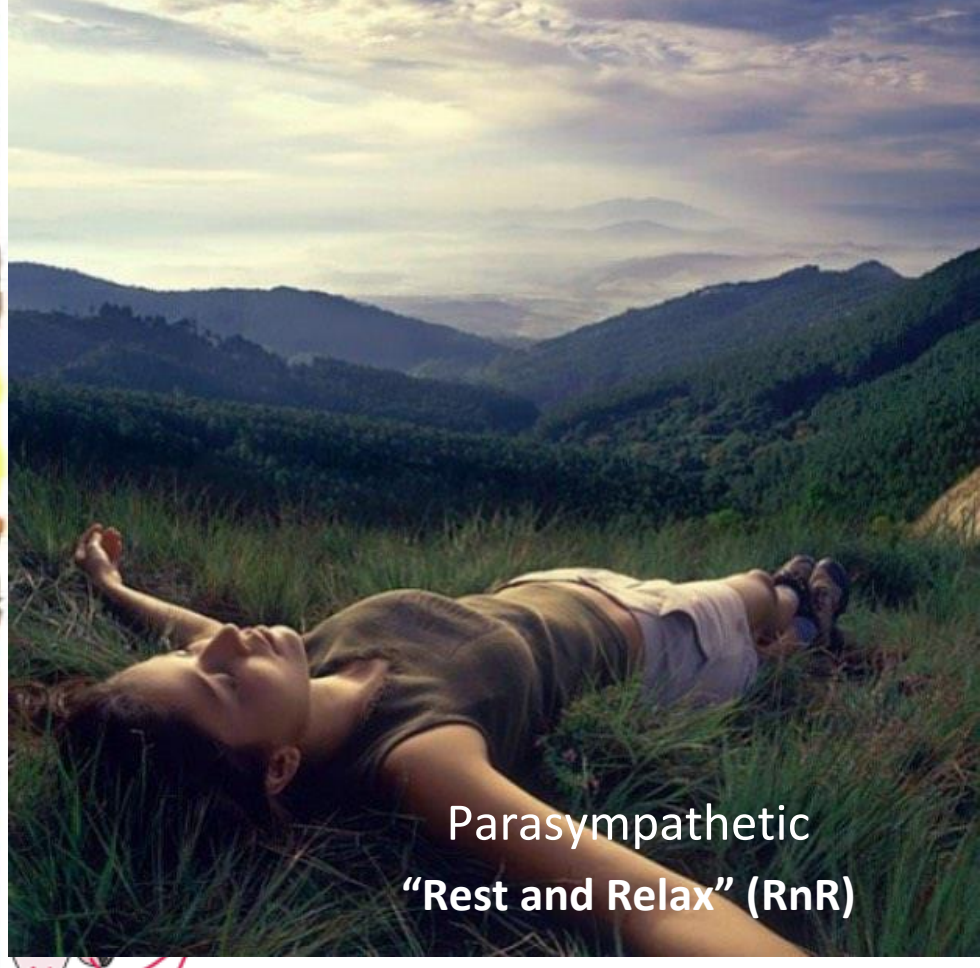
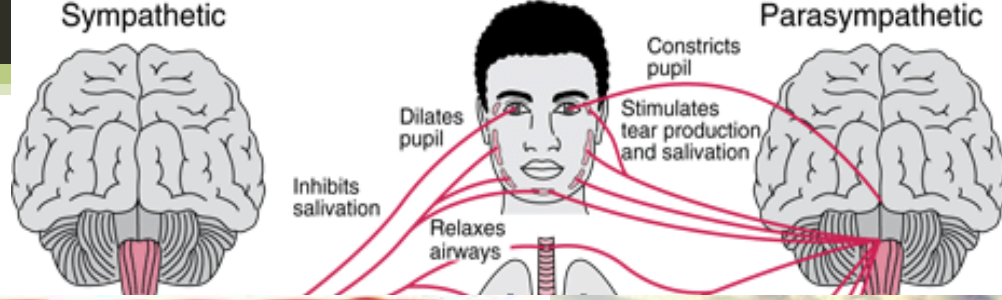
BIOPHILA:
“Inherent
Love of
Living
things”





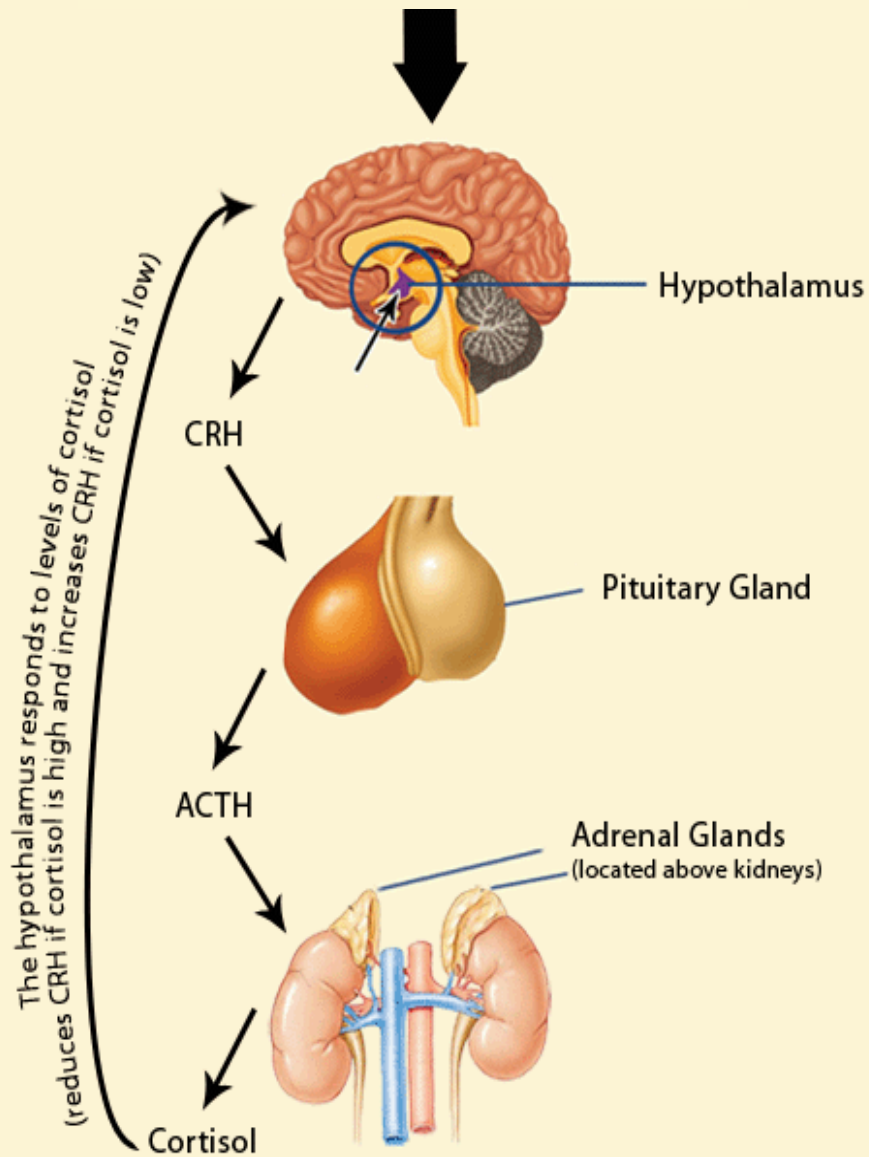
Psycho-Evolutionary Stress Theory

- “Nature” as evolutionary baseline

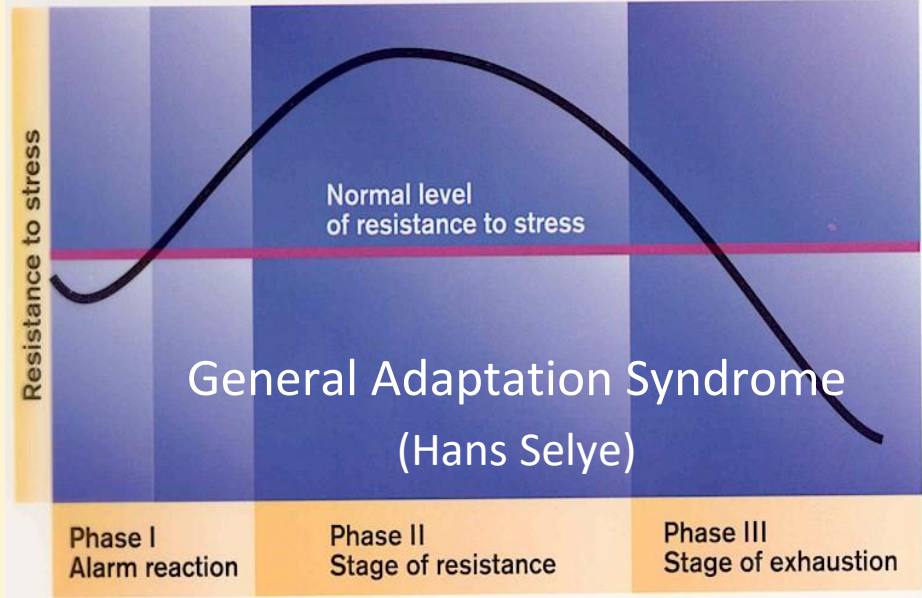


Autonomic Nervous System

Endocrine System



Stress & the HPA axis

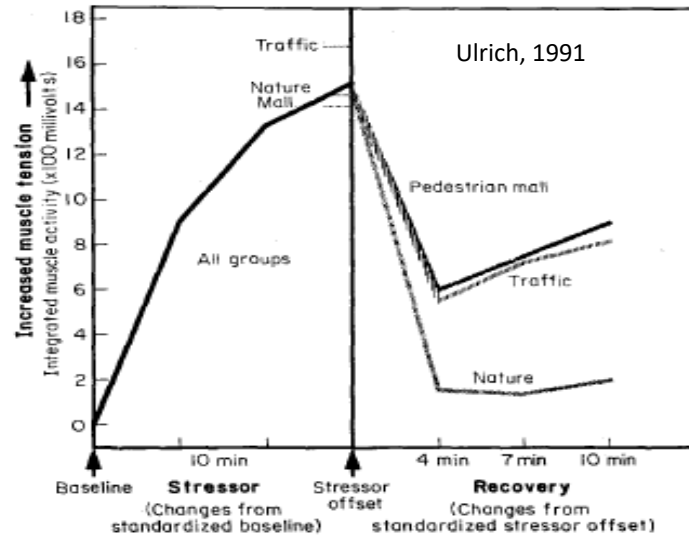


Hans Selye's General Adaptation Syndrome





Environmental Psycho-physiology



- Heart Rate
- Respiration Rate
- Blood Pressure
- Cortisol
- Blood Sugar
- Digestion
- Neurotransmitters
- Immune System
- Hormones
- Pain Control
- Mood

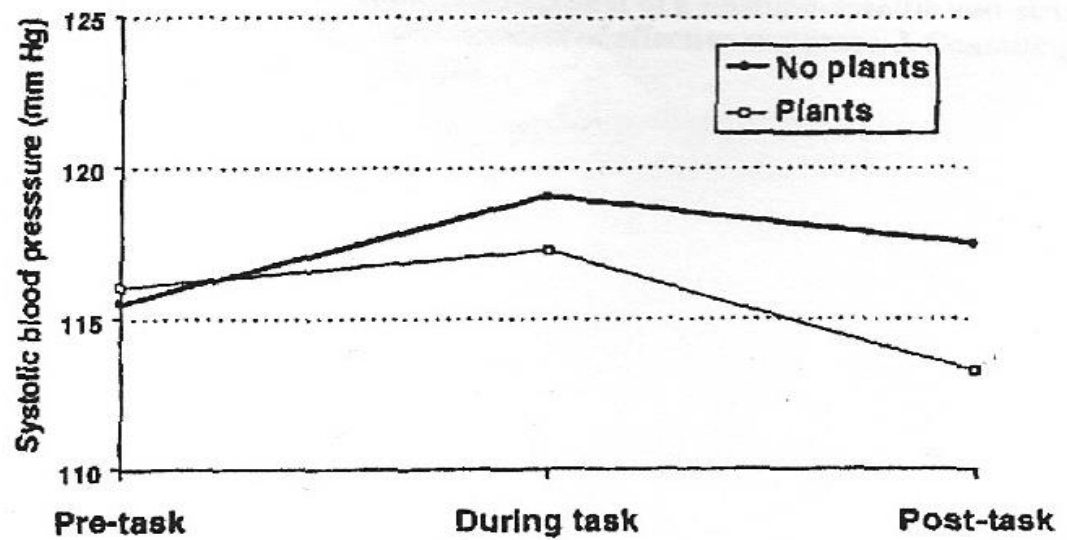
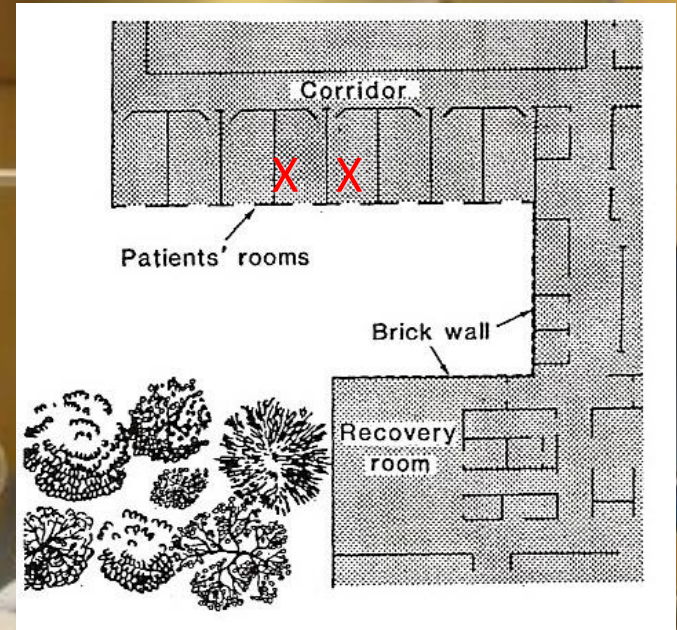


Fig. 2. Systolic blood pressure before, during, and after completing a computer-based productivity task in the presence or absence of plants (lines different, $P = 0.076$).



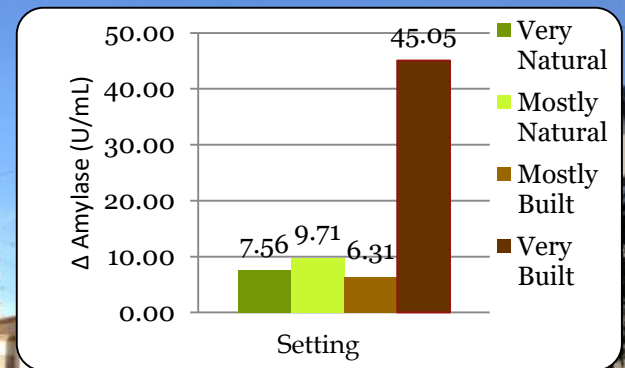
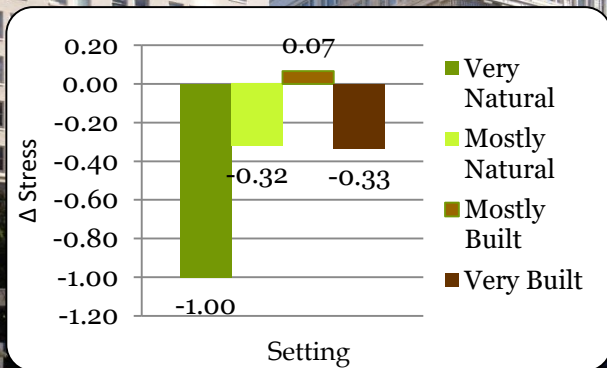
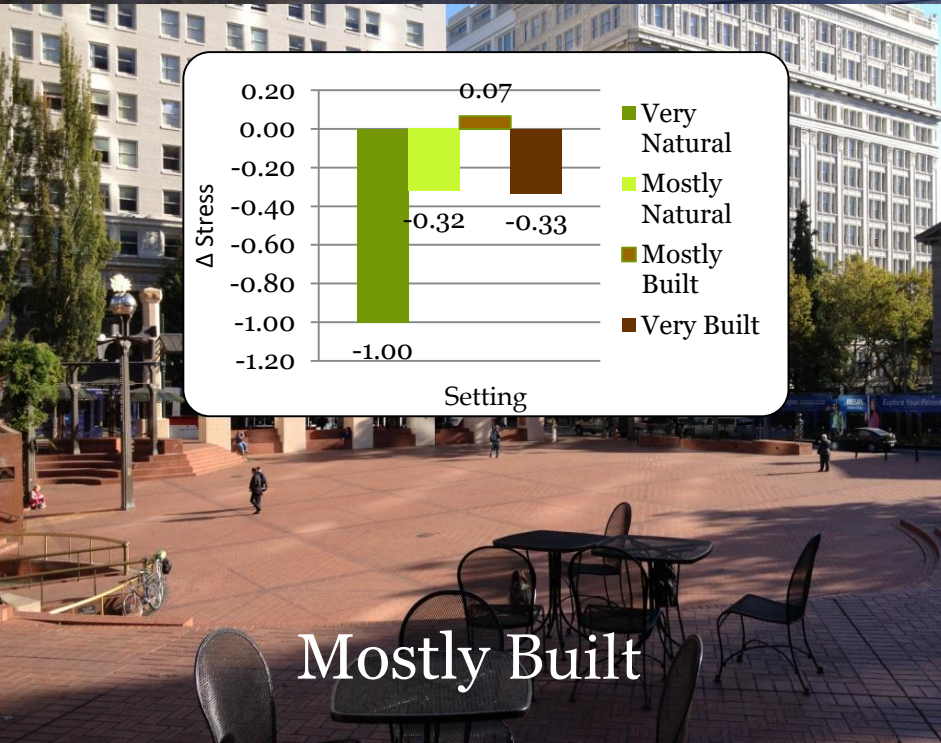
'View Through A Window' Study

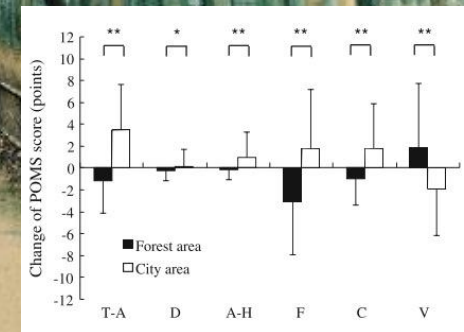
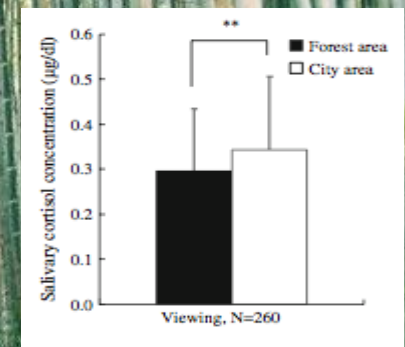
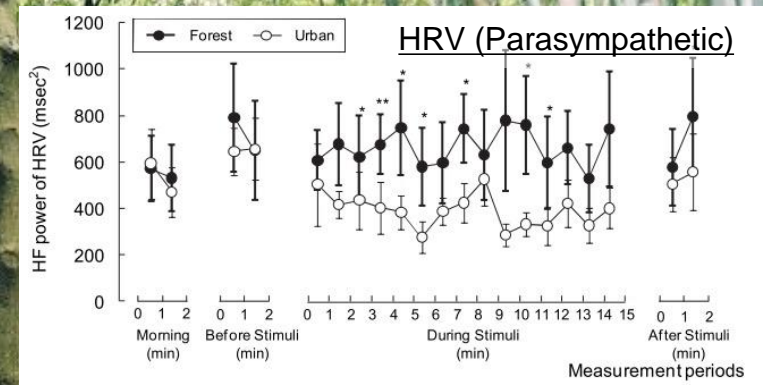


N=46	Nature View	Wall View	p≤
Recovery (days)	7.96	8.70	0.025
Analgesics taken/day	2.70	6.13	0.01
Negative observations from Nurses/day	1.13	3.96	0.001

The influence of urban natural and built environments on physiological and psychological measures of stress--a pilot study.

Beil K¹, Hanes D.



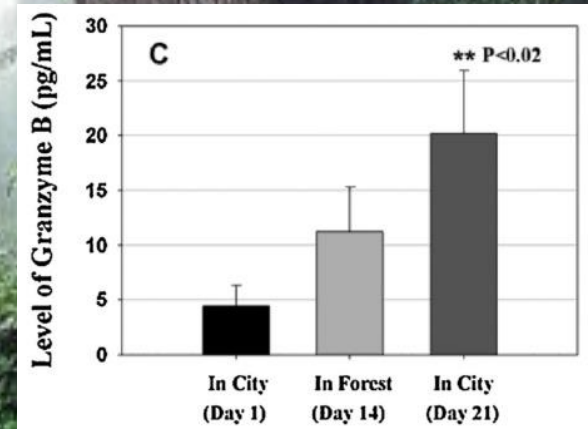
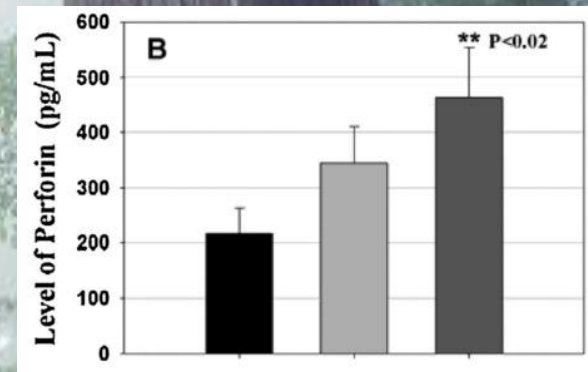


Japanese Ministries of Health AND Forestry
48 “Forest Therapy Centers”

Lee et al, 2011

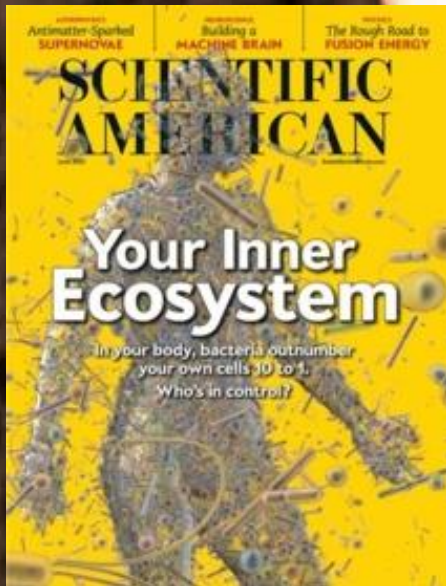
Forest-Air Bathing – *Shinrin-yoku* 森林浴

- **Phytoncides**
- Terpenes in forest air
 - α -pinene, camphene, tricyclene
- Primarily conifers
- (*Chamaecyparis obtusa*, *Thuja occidentalis*)
- Immuno-stimulatory effect
 - ↑ Natural Killer Cell activity & number.



Kim et al, 2015

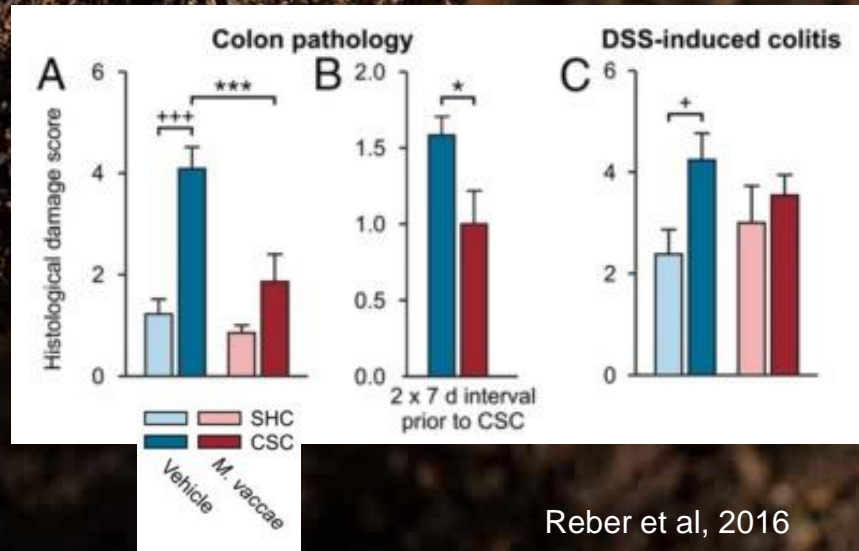
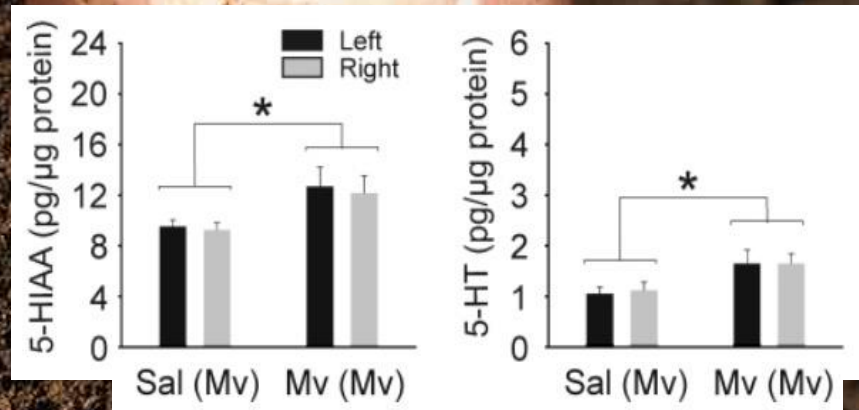
Forest-Air Bathing – *Shinrin-yoku* 森林浴



Neuroscience, 2007 May 11;146(2):756-72. Epub 2007 Mar 23.

Identification of an immune-responsive mesolimbocortical serotonergic system: potential role in regulation of emotional behavior.

Lowry CA¹, Hollis JH, de Vries A, Pan B, Brunet LR, Hunt JR, Paton JF, van Kampen E, Knight DM, Evans AK, Rook GA, Lightman SL.



Mycobacterium vaccae

Reber et al, 2016

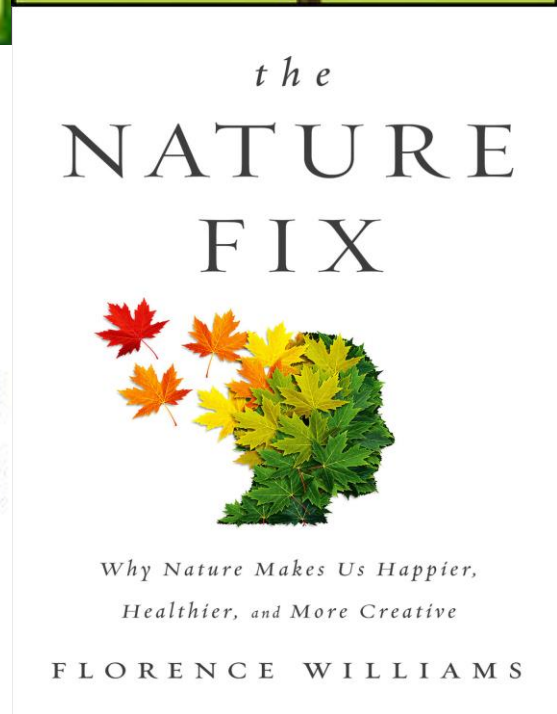
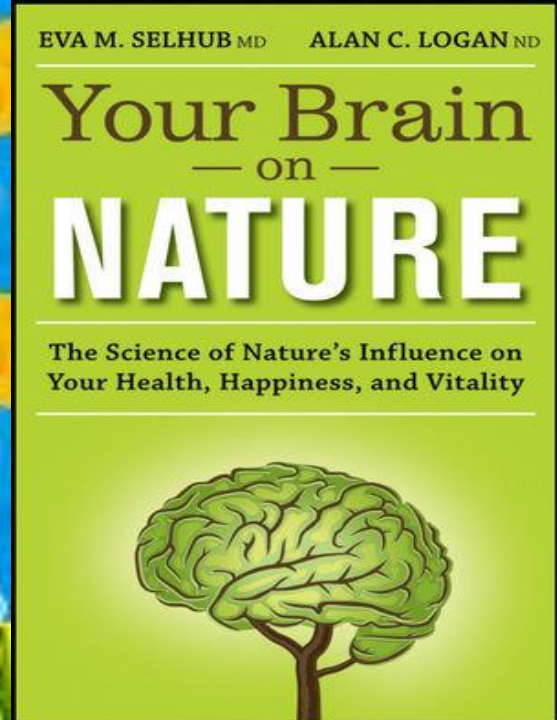
Gardening: It's Cheaper
than Therapy...

Plus you get Tomatoes!





- Increase Positive Well-being
- Joy, Happiness, Vitality
- Self-esteem
- Sense of Purpose
- Empathy & Altruism



EVOLUTION



SCREEN AGERS

GROWING UP IN THE DIGITAL AGE

screenagersmovie.com

Copyrighted Material

"As if to prove his point, Adam Alter has written a truly addictive book about the rise of addiction. *Irresistible* is a fascinating and much needed exploration of one of the most troubling phenomena of modern times."
—MALCOLM GLADWELL

IRRESISTIBLE

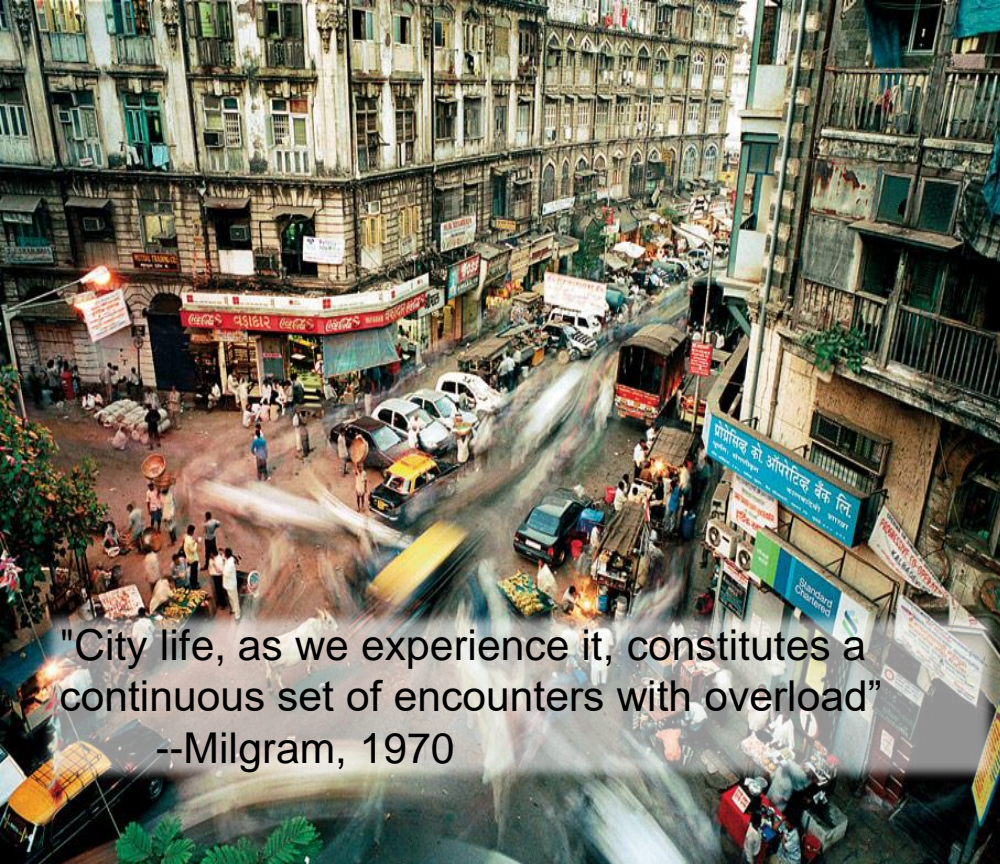
THE RISE OF ADDICTIVE TECHNOLOGY AND THE BUSINESS OF KEEPING US HOOKED

ADAM ALTER

NEW YORK TIMES bestselling author of DRUNK TANK PINK

Copyrighted Material





"City life, as we experience it, constitutes a continuous set of encounters with overload"
 --Milgram, 1970

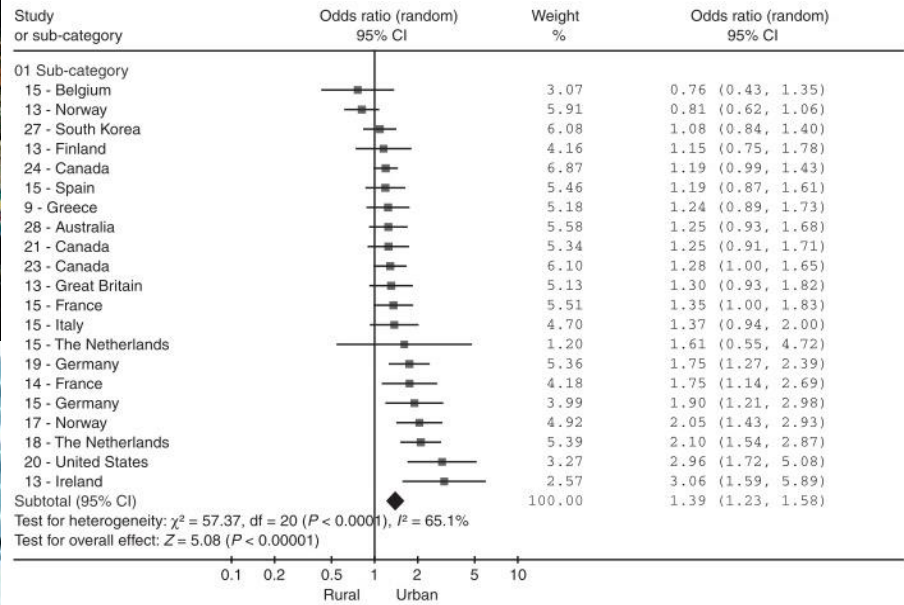


Urban Stress

Mood disorders

- Pooled Odds Ratio 1.28 (95%CI 1.13-1.44)

Peen, 2010



Neurosci Biobehav Rev. 2015 Nov;58:107-22. doi: 10.1016/j.neubiorev.2015.04.007. Epub 2015 May 1.

Brains in the city: Neurobiological effects of urbanization.

Lambert KG¹, Nelson RJ², Jovanovic T³, Cerdá M⁴.

SOLASTALGIA

“The distress produced by environmental change impacting on people while they are directly connected to the environment.”

Albrecht, 2007



Depression (PHQ) in W.Va Mountain-Top Removal (MTR) & non-MTR mining regions. Odds Ratio (OR)

n=8,591	Mild	Moderate	Severe
MTR	1.54	1.82	1.73
Non-MTR	1.41	1.49	1.45
w/Covariates	Mild	Moderate	Severe
MTR	1.28	1.40	1.26
Non-MTR	1.23	1.22	1.10

“All have 95% confidence intervals that exclude 1.00 and are significant at $p < .05$ or better.”

Hendryx & Innes-Wimsatt, 2013

Ecotherapy

Techniques:

- Visualization
- Place sitting
- House Plants
- Artwork
- Nature Walk/
Meditative Walking
- Gardening
 - Horticulture Therapy,
- Habitat Restoration



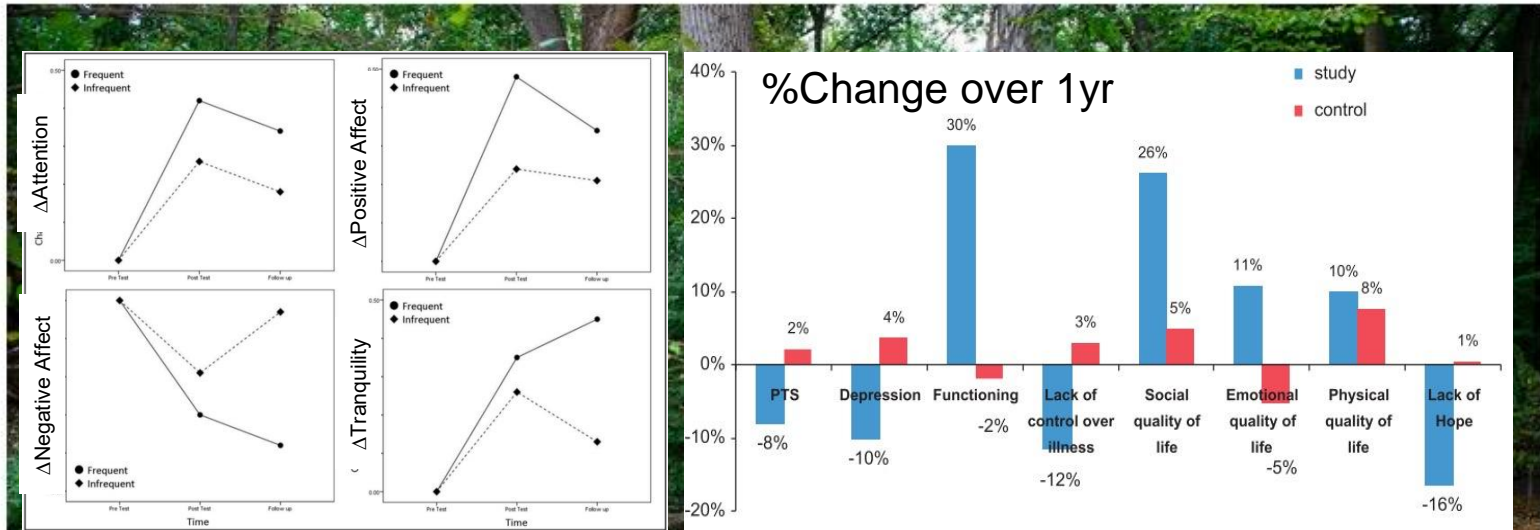
Nature as treatment? Road to healing PTSD is Green



By Rachel Nania | @rnanian
October 18, 2016 2:04 am



Can time among the pines treat PTSD? A local effort is underway to prove that nature may be the best medicine for wounded service members.



Duvall & Kaplan, 2013

Gelkopf et al, 2013



Rx:play

Physical activity is good for your health!

Name: _____ Date: _____

I recommend that you increase your physical activity and fun ...

With these activities:

- Walking
- Running
- Dancing
- Yoga
- Swimming
- Active Gaming
- Walk/Bike to School
- Bicycling
- Martial Arts
- Gymnastics
- Group Sports
- Other

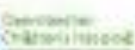
Your physical goal:

_____ minutes/day _____ days/week

Comments _____

Please return to see me in 6 months to see how it's going.

Clinician's signature: _____



GREEN EXERCISE

Jo Barton, Rachel Bragg,
Carly Wood and Jules Pretty

Routledge

GREEN EXERCISE

LINKING NATURE, HEALTH AND WELL-BEING



Edited by
**Jo Barton, Rachel Bragg,
Carly Wood and Jules Pretty**

earthscan
from Routledge



Home National ParkRx Day

NATIONAL PARKRX DAY

WHAT IS NATIONAL PARKRX DAY?

National ParkRx Day is a national celebration promoting the growing movement of prescribing parks and nature to patients to improve human health. Every year, it falls on the last Sunday of National Park Week, which will run from April 15-23. Additionally, National ParkRx Day encourages everyone to start seeing visits to parks and public lands as very important parts of their health. In 2015, the U.S. Surgeon General released a call to action to promote walking and walkable communities. National ParkRx Day builds on this call to action and provides citizens with parks and green spaces to promote public health.

ATTEND AN EVENT AT A PARK NEAR YOU ON APRIL 23RD!



A graphic with a light blue background and a green wave at the bottom. It features the ParkRx logo, a cloud, and a yellow circle that says "Register your event by March 15". The main text reads "Save the Date" and "Park Rx Day is April 23, 2017". At the bottom, it says "Learn more at ParkRx.org".



ABOUT THE INITIATIVE

The National ParkRx Initiative is a community of practice for agencies involved in park prescriptions programs at local, state, and national levels.

[join us](#)



NATIONAL PARKRX INITIATIVE WEBINARS

Learn about partnership, needs assessments, and program implementation and evaluation from recordings of our Fall 2016 webinar series.

[watch webinars](#)



**“What they do not value, they will not protect.
And what they do not protect, they will lose.”**

▫ **--Charles Jordan, Portland Parks & Rec Dept**

Nature-Based Therapy – Research ??

- What is “Nature”?
 - And, what is optimal for individual preferences?
- What is a “Dose”? Good news: No Overdose!!!
 - Quantity? Frequency? Dimin returns or Add Benefit?
- Synergistic Interactions & Covariates?
 - Stress? Past Hx? Psych modulation?
- Lack of data should not be a barrier to action
 - However, more research will enhance message (\$\$)
 - Case studies add to body of clinical research

Nature-Based Therapy – Considerations

- Use as complementary/adjunctive healthcare
- Not for everyone
 - Agoraphobia, Allergies, Socio-cultural factors
- Timing & Location
 - Winter? Nighttime? Safety? Access?
- Individualize Tx
 - SOME Nature Therapy applicable to everyone
- New Patient – Ask TWO questions:
 - What was your relationship to Nature as a child?
 - How much time do you (currently) spend outside?

Ecological
Health

Community
Health

Individual
Health





Thank You