

Taking in What the Forest has to Offer: The Health Benefits of Connecting with Nature



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Of concern to all! A tree is worth \$193,250

according to Professor T.M. Das of the University of Calcutta. A tree living for 50 years will generate \$31,250 worth of oxygen, provide \$62,000 worth of air pollution control, control soil erosion and increase soil fertility to the tune of \$31,250, recycle \$37,500 worth of water and provide a home for animals worth \$31,250. This figure does not include the value of fruits, lumber or beauty derived from trees. Just another sensible reason to take care of our forests.

From Update Forestry
Michigan State University

THE VALUE OF A TREE



SAVE OUR MOTHER EARTH



Perspectives on the Healing Benefits of Nature

It is not so much for its beauty that the forest makes a claim upon men's hearts, as for that subtle something, that quality of air, that emotion from the old trees, that so wonderfully changes and renews a weary spirit.

Robert Louis Stevenson, Forest Notes, 1905

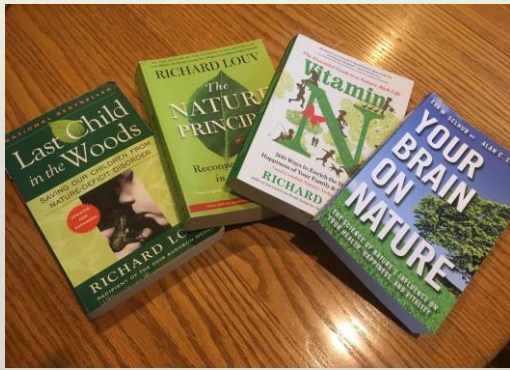
Perspectives on the Healing Benefits of Nature

"Climb the mountains and get their good tidings. Nature's peace will flow into you as sunshine flows into trees. The winds will blow their own freshness into you, and the storms their energy, while cares will drop away from you like the autumn leaves."

John Muir

Changing Patterns





Why Nature Connection is Important

- ❖ Research has found that spending time in nature is critical to our physical and mental health
- ❖ Being in nature regulates our sympathetic and parasympathetic nervous systems
- ❖ Being in nature restores a sense of well-being and life satisfaction
- ❖ Connecting with the “more than human” world actually improves our connections with one another
- ❖ Being connected to nature creates the understanding needed to advocate on its behalf

Wellness and Nature



“Taking in the Forest” Resets Your Nervous System



- ❖ According to research from Japan, spending time in a forested environment decreased heart rate, lowered blood pressure, and created a feeling of relaxation (Parasympathetic nervous system responses) as well as lowered cortisol levels associated with “fight or flight” responses (sympathetic nervous system response)
- ❖ Participants in the study also demonstrated less depression and hostility and felt more “lively”

Note: These health benefits were not seen when test subjects spent equal time in an urban areas

Nature Lowers Blood Sugar



- ❖ In a study of 87 adults with Type-Two Diabetes, when the participants walked for either 3 or 6 km (depending on their physical ability) over 9 occasions, they displayed lower glucose levels, improved insulin sensitivity, and decreased levels of hemoglobin A1c (an indicator of how well blood glucose levels have been controlled)
- ❖ There did not seem to be much difference in results between those who walked 3km or 6km so researchers concluded that factors other than exercise contributed to these results

Nature Improves Immunity: The Power of Phytoncides



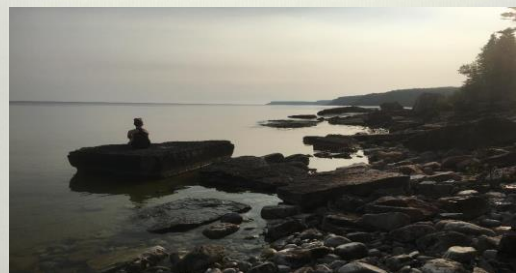
- ❖ In Japanese studies, subjects who spent 3 days in a forested environment, walking for three, 2 hour sessions each day, significantly decreased levels of stress hormones and increased the number and activity of anti-cancer fighting killer cells compared with walking for the same periods in an urban environment
- ❖ Even 30 days after the forest walk experience, there was an increase in the number and activity of natural killer cells suggesting that monthly forest walks are an important preventative factor for health
- ❖ Researchers believe that Phytoncides from essential oils given off by trees were at least partly responsible for these results
- ❖ Laboratory studies on Phytoncides confirmed that they can increase anti-cancer proteins and enhance natural killer cell activity

Nature Improves Healing and Reduces Pain



- ❖ A study done in a Pennsylvania hospital on patients recovering from gall bladder surgery found that those who had windows facing trees recovered faster, needed less pain medication and were easier patients behaviourally than patients looking at a brick wall
- ❖ A study conducted by John Hopkins University School of Medicine looked at the effects of nature scenery and sounds on pain perception
- ❖ A randomized controlled clinical study of 120 adults undergoing a bone marrow biopsy using only local anesthetic indicated that the group viewing scenery of nature and listening to nature sounds had a reduced perception of pain during the procedure

Being in Nature Improves Mood and Reduces Anxiety



- ❖ A study of almost 500 adults in Japan revealed that compared to their normal living environments, participants reported significantly less depression and felt significantly more lively when in a forest
- ❖ The same study also revealed that the greater the stress level individuals experienced, the greater the stress reduction when “forest bathing”
- ❖ Gregory Bratman from Stanford University found that walking in nature reduces anxiety, rumination (focused attention on negative things), and negative affect in addition to creating a more positive affect compared to urban walks

Playing in the “Dirt” is Good for the Human Gut Microbiome and Overall Health



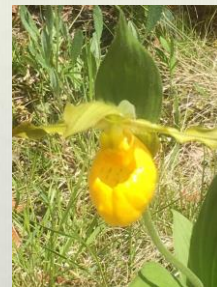
- ❖ A common soil bacteria, *Mycobacterium vaccae*, is taken into the body when engaging in the natural world improving gut flora
- ❖ Breathing in, playing in, and digging in “dirt” and is linked to a more robust immune system, improved mood, and overall health
- ❖ *M. vaccae* in the soil cause cytokine levels to increase resulting in a rise in serotonin resulting in an antidepressant effect
- ❖ *M. vaccae* has also been linked to improved cognitive functioning, lower stress, and better concentration

Being in Nature Increases Generosity and Improves Human to Human Relationships



- ❖ Research out of the University of California (Berkley) in 2014 found that people exposed to beautiful nature scenes treated others with more generosity and trust
- ❖ A University of Illinois study in a Chicago public housing complex found that the presence of trees and green space increased feelings of unity with neighbours, improved a sense of community, reduced crime and aggression, and improved people's capacity to deal with life's demands and stresses
- ❖ According to Capaldi, Dopko, and Zelenski (*Frontiers in Psychology*, September 8, 2014) those who are connected to nature tend to have a more positive affect, vitality, and life satisfaction compared to those less connected to nature

Being Outdoors Increases Vitamin D Production



The Benefits of Vitamin D

- ❖ Connecting with Nature will boost Vitamin D levels
- ❖ Vitamin D is important for mood, immune functioning, bone health and healthy blood sugar levels
- ❖ As sun comes in contact with skin cells, Vitamin D is made available for use by the body

Connecting with Nature Improves Creativity and Cognition



- ❖ Strayer (2012) showed that hikers on a four-day backpacking trip demonstrated a 47% increase in ability to solve complex problems requiring creative solutions
- ❖ Bratman et.al., 2015 found that walking 50 minutes in a forested environment (vs an urban environment) led to improvements in complex working memory tasks as well as improvements in affect

Playing in Nature is Needed to Develop Sensory Integration

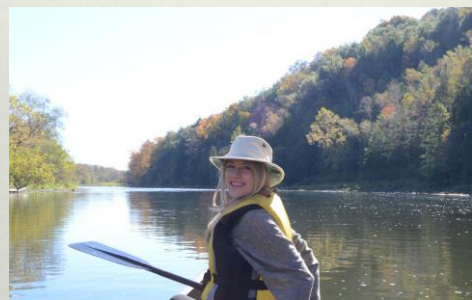


Sensory Integration is Critical for Emotional Regulation

Each sense must be engaged and developed for overall sensory integration to occur

- ❖ Vision
- ❖ Auditory
- ❖ Olfactory (Sense of Smell)
- ❖ Taste
- ❖ Touch
- ❖ Vestibular (Balance and Coordination)
- ❖ Interoception ("Gut Feeling")
- ❖ Proprioception (Coordinates all Sensory Input in the Body)

Nature Connection Improves Happiness and Productivity



- ❖ Being outdoors increases serotonin and dopamine. Both serotonin and dopamine are neurotransmitters in our brain that are responsible for sending messages between the brain and different nerve cells of the body
- ❖ Serotonin is responsible for many functions such as memory, sleep, behavior, and appetite. Dopamine affects movement, emotional response, and your ability to feel pleasure.

Improved Concentration



- ❖ A University of Illinois study of 17 children diagnosed with ADHD found that after a 20 minute walk in a city park, the children demonstrated significantly improved concentration compared to a 20 minute walk in the downtown and residential areas
- ❖ The improvement in concentration of the children after walking for 20 minutes in a city park were comparable to the effects of being on ritalin

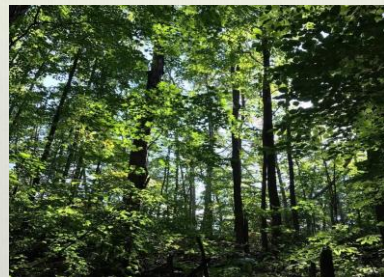
Nature Relieves Attention Fatigue

- ❖ Attention Restoration Theory researchers Stephen and Rachel Kaplan have looked at our ability for sustained focused attention and have found that being in nature or even seeing images of nature can recharge your ability for focused attention

“Nature doesn’t just have one or two ingredients. It is more like a multivitamin that provides us with all sorts of nutrients that we need. That’s how nature can protect us from all these different kinds of diseases – cardiovascular, respiratory, mental health, musculoskeletal, etc. simultaneously”

Ming Kuo, University of Illinois

What this Means for You



Reduced Symptoms of Stress

The reduction of the stress hormones cortisol will result in the following results:

- ❖ Lowered cortisol can take people out of a flight/fight response
- ❖ Lowered cortisol leads to improved focus and concentration
- ❖ Lowered cortisol reduces symptoms of stress and increases a sense of well-being
- ❖ Lowered cortisol improves immune functioning leading to improved health and overall functioning

Reduced Attention Fatigue

Reductions in attention fatigue leads to the following results:

- ❖ Improved focus, concentration, and learning
- ❖ Reduced stress, agitation, impatience, and aggression
- ❖ Improved memory
- ❖ Improved creativity
- ❖ Improved mindfulness

Improved Sensory Integration

Outdoor play in nature improves sensory integration creating the following results:

- ❖ improved coordination
- ❖ Improved self regulation
- ❖ Improved ability to sit still and listen
- ❖ Improved self confidence
- ❖ Improved risk taking

Improved Parasympathetic Nervous System Health

Improved sympathetic nervous system health will lead to the following results:

- ❖ Improved sleep
- ❖ Improved relaxation
- ❖ Improved digestion
- ❖ lower blood pressure
- ❖ Lower blood sugar levels

Improved Immunity and Sympathetic Nervous System Health

- ❖ Spending time in nature lowers cortisol levels reducing your "fight or flight" response
- ❖ Stress hormones, like cortisol, can have negative impacts on our overall health when not needed for our fight or flight response
- ❖ Breathing in phytoncides will increase your natural killer (NK) cells resulting in improved health through improved immune functioning

Improvements in Mood, Life Satisfaction, and Overall Happiness

Spending time in nature leads to the following results:

- ❖ Reduced rumination
- ❖ Greater empathy and improved relationships
- ❖ Greater feelings of happiness and overall satisfaction

Other Benefits from Spending Time in Nature

- ❖ Sun exposure synthesizes vitamin D leading to the absorption of calcium increasing bone health
- ❖ Outdoor play allows exposure to critical good bacteria from the soil which contributes to improvements in mood and healthy gut flora
- ❖ Outdoor play leads to reduction in obesity
- ❖ Unstructured outdoor play leads to creative problem solving, independence, and confidence
- ❖ Improved eyesight

What is Nature Connection?



What is Nature Connection?

- ❖ A full sensory experience where nature is taken in with all of your senses
- ❖ Recognition that we are a part of the natural system of nature and what we do to nature, we do to ourselves
- ❖ Slowing down and creating a bond of affection and respect for the more than human world
- ❖ Emotional connection through “timeless” experiences

What Nature Connection is Not

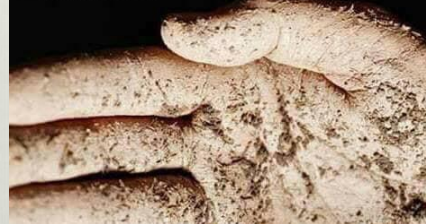
- ❖ Outdoor Recreation
- ❖ Outdoor Education
- ❖ Primitive Skills Acquisition

Nature Connection is about Relationships

- ❖ Our Relationship with the Earth
- ❖ Our Relationship with Nature and Ourselves
- ❖ Our Relationship with Nature and One Another

Earth is not a platform for human life
It's a living being.
We're not on it but part of it.
Its health is our health.

— Thomas Moore



Relearn Reciprocity, Rewilding, and Gratitude Toward Nature



Making the Most of the Time that You Can Spend in Nature



Catalysts Supporting Nature Connection

- ❖ Full sensory experience
- ❖ Sense of timelessness
- ❖ Mindful wandering/Slowing things way down
- ❖ Sense of autonomy (not feeling supervised)
- ❖ Disconnect from Distraction
- ❖ Affective rather than logical/structured
- ❖ Invitations vs Activities
- ❖ Reflective vs Task Oriented

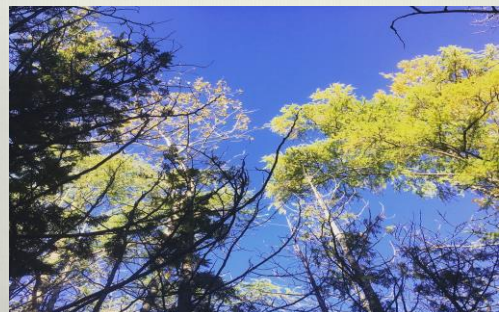
No Need to Travel Far



As Little as 7 Minutes in Nature Can Reduce Cortisol Levels and Reduce Stress



As Little as 20 Minutes in Nature Can Improve Concentration



Spend Time Viewing Fractal Patterns



Breathe in the Forest Air



Engage Your Senses



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