

# ***Back to Nature***

Exploring the Physiological, Psychological, and  
Preventive Medicine Aspects

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# Biophilia

The word biophilia originates from the Greek, 'philia' meaning 'love of'.

It literally means a love of life or living things. Humans have a deeply engrained love of nature which is an intuitive and natural drive imprinted into our DNA



# Urbanization and Nature Disconnection

*56% of the global population lives in urban areas.  
By 2050, this will rise to 68%, with reduced access  
to green space.*

# Urbanization and Nature Disconnection



*Less than 10% of children spend more than one hour outdoors daily — less time than the average prisoner*



# Urbanization and Nature Disconnection

*Adults spend 10–12 hours/day exposed to screens & artificial environments.*

- Urban areas:  
buildings - roads - concrete spaces
- Indoor spaces:  
offices - schools - malls - homes
- Virtual environments:  
video games - virtual reality (VR)
- Controlled environments:  
laboratories  
air-conditioned rooms  
artificial lighting

# Urbanization and Nature Disconnection

*Nature walks improve mood vs. urban walks*



# Why Back To Nature?



# Green space within 500m is associated with

1. ↓ **Cortisol (stress hormone)**  
↓ **Attenuating hypothalamic-pituitary-adrenal (HPA) axis activation**  
↓ **HR & BP**
  - Regular exposure to green space has been shown to lower baseline cortisol levels, indicating reduced chronic stress.
  - This has been observed through salivary cortisol measurements in people living near or spending time in green environments



# Green space within 500m is associated with

## 2. Enhances Autonomic Nervous System Balance → →

↑ Parasympathetic Activity

↓ Sympathetic Activity.

# Green space within 500m is associated with

- 3.** ↑ **Activity in Green Areas** with ↓ **Exposure to Pollutants** →  
↓ **Systemic inflammatory markers (e.g., IL-6, CRP)** →  
↓ **Chronic inflammation** →  
↓ **Risk of Diabetes**  
    **Atherosclerosis**  
    **Stroke**



# Green space within 500m is associated with

## 4. Improves Circadian rhythm

- \* Natural light regulates melatonin and circadian rhythm
- \* Early sunlight improves sleep and mood

# Green space within 500m is associated with

## 5. Reduces Mental Stress & Improves Mood

### Green space is associated with:

↑ Positive emotions

joy - calm - awe

↓ Negative emotions

anxiety – sadness - irritability

### Mechanisms include

- Exposure to natural light → ↑ serotonin
- Sensory inputs (colors, sounds) → activate limbic reward systems



# Biophilic Deprivation

## **1. Increased Non-Communicable Diseases (NCDs)**

## **2. Limited Physical Activity**

*Reduced access to natural green spaces leads to lower physical activity levels, especially among children and older adults.*

## **3. Exposure to Pollutants**

*High concentrations of traffic, industrial emissions, and indoor pollutants increase the risk of respiratory and allergic diseases.*

# Biophilic Deprivation

## 4. ***Stress and Anxiety***

*Crowded, noisy, and overstimulating environments can increase chronic stress, leading to anxiety and burnout.*

## 5. ***Depression and Mood Disorders***

*Lack of exposure to nature has been associated with higher rates of depression and emotional dysregulation.*

## 6. ***Cognitive Fatigue***

*Urban environments, with constant sensory input and limited restorative stimuli, contribute to reduced attention span and cognitive performance.*



# Biophilic Deprivation

- 7. Phytoncides (volatile plant compounds) increased NK cell activity by 50%, sustained for >7 days post-exposure.  
even short-term exposure to nature has long-lasting immune-enhancing effects*
- 8. Children raised on farms with animal and soil contact had 50% lower allergy rates.*
- 9. Vitamin D from sunlight contributes to a 30–50% reduction in respiratory infection incidence  
Sun → ↑ Vitamin D → ↓ Depression, ↑ Immunity.*

# Biophilic Deprivation

## **10. Health Inequities**

*Vulnerable populations in urban slums face higher disease burdens due to overcrowding, poor sanitation, and limited healthcare access.*

## **11. Reduced Immune Function (Hygiene Hypothesis)**

*Limited early-life exposure to natural microbiota in urban settings may lead to increased autoimmune and allergic disorders.*

## **12. Loss of Therapeutic Environments**

*Green and blue spaces (parks, rivers, forests) are known to lower blood pressure, heart rate, and stress hormones; their absence diminishes public health resilience.*



Back To Nature: A Scientific Perspective on Nature's Healing Power

**SEE THE POSITIVE IMPACT**

Prof. Essam M Elsayaf

NETFLIX



# Rekindling Biophilia and Reconnecting with Nature By Helping people feel healthier and more balanced by staying connected to the natural world



For

# ***1. Chronic Disease Patients***

Hypertension, diabetes, obesity, and cardiovascular disease.

Nature exposure encourages physical activity and lowers stress markers.

# ***2. Patients with Mental Health Conditions***

Depression, anxiety, PTSD, ADHD, and burnout.

Nature-based interventions support emotional regulation and resilience.



For

### ***3. Elderly Individuals***

Particularly those with cognitive decline (e.g., dementia) or mobility limitations.  
Nature improves memory, mood, and encourages gentle physical activity.

### ***4. Children and Adolescents***

Enhances cognitive development, attention span, and social skills.  
Counters the effects of excessive screen time and sedentary behavior.



For

## ***5. Healthcare Workers***

High stress, emotional fatigue, and risk of burnout.

Nature engagement reduces emotional exhaustion and improves job satisfaction.

## ***6. Occupational Health Settings***

## ***7. Urban Residents***



# Green Prescriptions

A non-drug prescription where a physician advises a patient to spend time in natural environments like parks, forests, or gardens.

## Park-Based Walking Programs

Walk for 30 minutes, 5 days a week in a nearby green space (e.g., park or garden)."

## Horticultural Therapy

Spend 1 hour, 2–3 times a week in gardening activities.

## Forest Bathing (Shinrin-yoku)

Participate in guided forest immersion once a week for stress relief.

## Beach or Coastal Visits

Visit a coastal environment once weekly for mindfulness or low-impact activity.

## Nature Journaling or Outdoor Mindfulness

Spend 20 minutes daily observing and recording natural surroundings in a journal.

## Green Exercise Groups

Join a local nature-walking or cycling group twice weekly.





# Nature Inspired Hospital Design

## Biophilic design elements

- Large windows with views of trees or gardens.
- Indoor plants, green walls, water features in lobbies or wards.
- Natural light and ventilation rather than artificial light and sealed air.

## Benefits

- Infection Control
- Reduces length of hospital stay.
- Lowers pain perception (patients may use less analgesia).
- Improves sleep and reduces ICU delirium.

Patients recovering from surgery with a view of nature needed fewer pain medications and were discharged sooner compared to those with a view of a brick wall



**Biophilic reconnection can be seen as a complementary form of preventive medicine because it helps prevent illness by improving mental and physical health through regular contact with nature, alongside traditional medical prevention methods.**



