



# The Science Behind the Health Benefits of Nature

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## A Doctor's View: The Restorative Power of Nature during COVID-19



Michael Suk, MD, JD, MPH, MBA, FACS Apr 9, 2020 · 5 min read



If your social media feed looks anything like mine right now, it's filled with two things: 1) messages about COVID-19 and 2) nature shots. Amidst the posts about possible supply shortages and staffing fears, people are sharing photos of hikes, campfires, and bicycle rides. A physician colleague posted that it's the first time ever that he's gone for a walk with his wife two weekdays in a row.



Smarter, Stronger,  
Better







# Short Term Memory

Nature walks are  
best

Trees and fields  
beat roads and  
lampposts



# Depression

Improved memory

Improved mood







Green spaces  
lessen “brain  
fatigue”

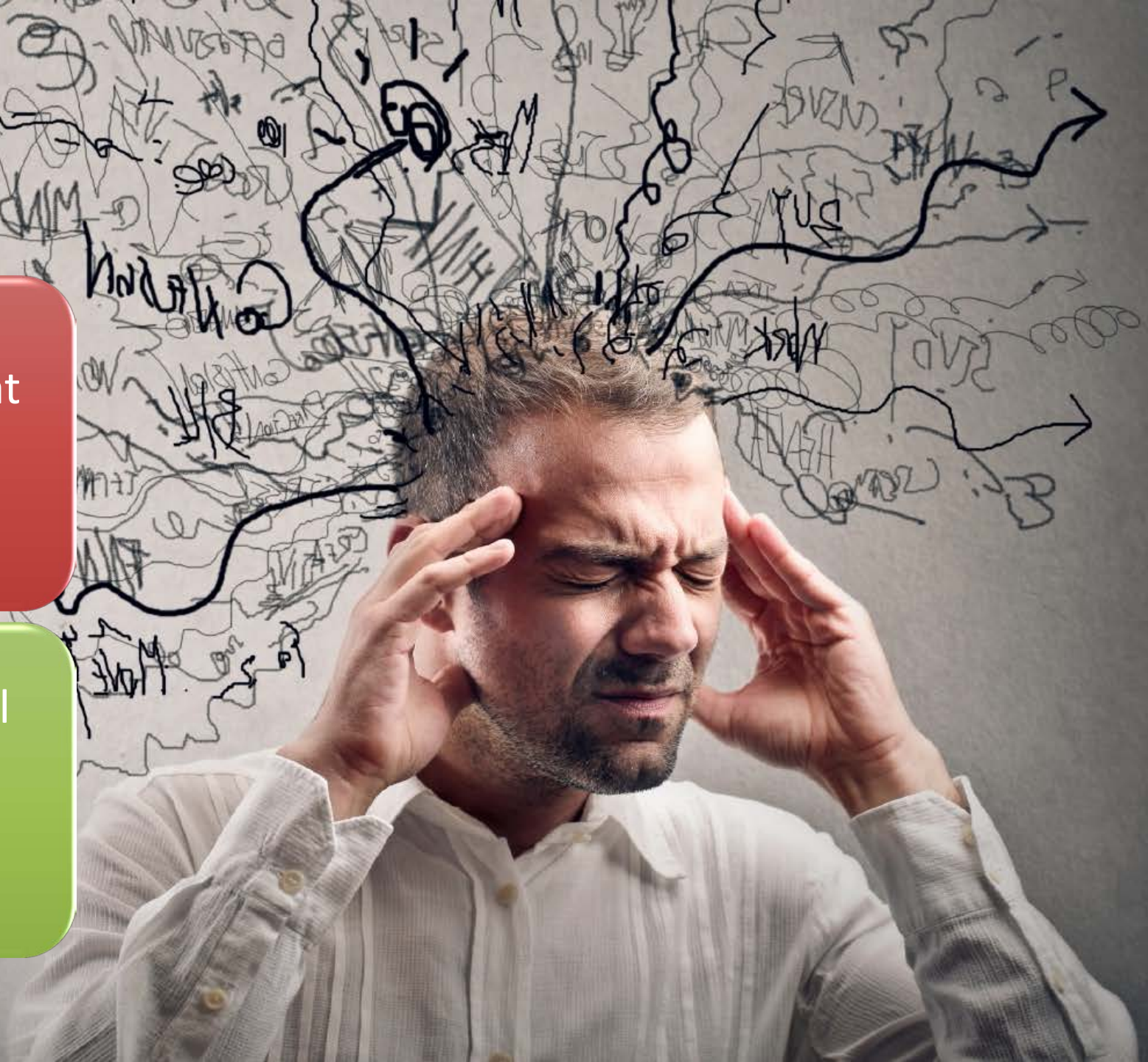
Directed mental  
attention vs.  
soft fascination



## Brain Effects

Hemoglobin levels drop in the prefrontal cortex, meaning that the home base of executive function has switched a few lights off

Rise in the insula and the basal ganglia associated with emotion, pleasure, and empathy.





A 3D scientific illustration of immune cells, likely Natural Killer (NK) cells, rendered in glowing blue and white. The cells have a complex, textured surface with many small protrusions and indentations. One cell in the center-left has a bright yellow-white nucleus. The background is dark blue with small, distant white dots, suggesting a microscopic or cellular environment.

# Immunity

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Increase in NK  
activity

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Remained elevated  
30 days later!





Reduce Inflammation

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Decreased levels  
of IL-6, and tumor  
necrosis factor  $\alpha$



# Communication Gap

A person in a white shirt is placing a red wooden block to bridge a gap between two structures made of light-colored wooden blocks. The structures are built on a dark wooden surface. The background is dark and out of focus.

- Leisure field
- Public health





# Parks and Forests provide...

How, What, and Where...

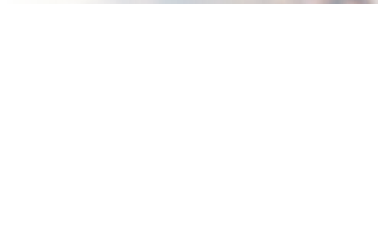


# Starts with...

- Hiking, biking and camping have the greatest longevity that any of the human powered outdoor activities

## Gateway to Better Health?

Gale Norton<sup>†</sup> & Michael Suk<sup>††</sup>





# Leads to...

- Climbing
- Downhill skiing
- Snowboarding
- Kayaking
- Cross-country skiing
- Trail running
- Snow shoeing
- Volunteering





A photograph of an elderly man with white hair, wearing a brown sweater, carrying a young boy on his shoulders. The boy is wearing a yellow long-sleeved shirt and dark pants, and is waving his right hand. They are both smiling and appear to be running or jumping through a field of tall, golden-brown grass. The background is a clear, bright sky. The text is overlaid in the center of the image.

90% of active adult  
participants started between  
the ages of 5 and 18

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# Challenges



Who pays?





# Diversity





What is the  
message?





OPPORTUNITY





# Components of Health and Wellness





# Social Determinants of Health



## Economic Stability

- Employment
- Income
- Expenses
- Debt
- Medical Bills
- Support



## Neighborhood and Physical Environment

- Housing
- Transportation
- Safety
- Parks
- Walkability



## Education

- Literacy
- Language
- Early childhood education
- Vocational training
- Higher education



## Food

- Hunger
- Access to health options



## Community and Social Context

- Social integration
- Support systems
- Community engagement
- Discrimination



## Health Care System

- Health coverage
- Provider availability
- Provider linguistic and cultural competency
- Quality of care

Mortality

Morbidity

Life Expectancy

Health Care Expenditures

Health Status

Functional Limitations



# PARK PRESCRIPTIONS

Profiles and Resources for Good  
Health from the Great Outdoors

Rx

MEDICAL CENTER



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Thank You