Healthy Urban Microbiome Initiative

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2010

**Outcome**
- attention (5 studies)
- energy (5 studies)
- tranquility (7 studies)*
- anxiety (6 studies)*
- anger (8 studies)
- fatigue (4 studies)
- sad/depressed (5 studies)
- systolic bp (5 studies)
- diastolic bp (4 studies)
- cortisol (4 studies)
2015
Glyphosate shown to disrupt microbiome 'at safe levels', study claims

Study on rats said to show that the chemical, found in Monsanto’s Roundup weedkiller, poses ‘a significant public health concern’
Dose-response greenspace exposure
Hygiene Hypothesis
Our Global Challenge

Biodiversity loss \(\rightarrow\) Microbiome degradation \(\rightarrow\) Diminished population health

Environmental degradation

Climate change

Population growth and urbanisation
300 Million by 2030
Causal Pathway

Greenspace Availability → + Biodiversity → + Food Gardens → + Physical Activity

Air Cleaning → - Biodiversity

Greenspace 'Friendly' Policies → + Pollution → + Emerging Infectious Disease

Respiratory Stress → - Green Space Demand

Healthy Environmental Microbiome → + Quality of Diet → + Immunological Resilience

Healthy Human Microbiome → + Immunological Illnesses

Thermal Buffering → + Social Integration → + Calming Environments

Social Isolation → - Physiological Stress

Heat Stress → - Obesity

Causal Pathways Through Urban Green Space

 Adds to / same direction

 Subtracts from / opposite direction
CONCEPTS AND QUESTIONS

Biodiverse green spaces: a prescription for global urban health

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The world is urbanizing and chronic health conditions associated with urban living are on the rise. There is mounting evidence that people with a diverse microbiome (bacteria that inhabit the human body) or who interact with green spaces enjoy better health. However, studies have yet to directly examine how biodiverse urban green spaces (BUGS) might modify the human microbiome and reduce chronic disease. Here we highlight the potential for green spaces to improve health by exposing people to environmental microorganisms that diversify human microbiomes and help regulate immune function. We present four international perspectives (from Australia, China, India, and the UK) on the major challenges and benefits of using BUGS to alleviate health burdens. We propose solutions to these challenges and outline studies that can test the connections between BUGS, immune function, and human health and provide the evidence base for effective BUGS design and use. If further studies reinforce this hypothesis, then BUGS may become a viable tool to stem the global burden of urban-associated chronic diseases.

Front Ecol Environ 2017; doi: 10.1002/fee.1630
Pilot Project 2: Greenspace Access
Pilot Project 3: Microbiome sampling

4 Cities

5 Types of greenspace

3 Replicates

+ Soil, air, skin and nasal swab sampling
Direction of Travel

‘pocket’ parks

biodiverse design

microbiome cultivation

_health improvement_
Population Health Management

Community-led

Place-based

Civic-led

Service-led
www.humi.site

get in touch

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