

# Nature-based interventions for active and sustainable cities: Why Green Space Matters



@TadhgMacIntyre





## Overview

---

- Environmental Psychologist
- Lead of GoGreenRoutes H2020 project
- 4 year project promoting urban health across 6 EU cities
- Coordinate MSc. Environmental Psychology
- Not an expert but experienced researcher and practitioner

Interested in 3's



## Our Journey

---

Paradigm shift is defined as "an important change that happens when the usual way of thinking about or doing something is replaced by a new and different way."

Key  
Concepts

Green  
Exercise

Blue  
Exercise

Digital  
Simulations

## Words Count

Physical  
Activity

“Any bodily movement produced by skeletal muscles that results in energy expenditure”

Exercise

“A type of PA consisting of planned, structured, and repetitive bodily movement done to improve and/or maintain one or more components of physical fitness.”

Blue and  
Green  
Exercise

“Physical Activity in Natural Settings.”



## Our Journey

---

Paradigm shift is defined as "an important change that happens when the usual way of thinking about or doing something is replaced by a new and different way."

Key  
Concepts

Green  
Exercise

Blue  
Exercise

Digital  
Simulations

Are these  
comparable?

Limerick City  
Greenway



Hyde Park,  
London

Do these  
add up?



Does digital  
Count?







## Our Journey

---

Paradigm shift is defined as "an important change that happens when the usual way of thinking about or doing something is replaced by a new and different way."

Time for change?

Key  
Concepts

Green  
Exercise

Blue  
Exercise

Digital  
Simulations



## Urban Context

---

- **WHO recommendation** (2016) access to green space (0.5 hect.) within 300m of residence.
- Aligns with **SDG 11.7 target**: Providing **universal access to safe, inclusive and accessible, green and public spaces**, in particular for women and children, older persons and persons with disabilities.

**Greenspace  
Counts**

**3's Count**

**Minutes  
Count**

**Future  
Greening**

# Health Impact Assessment

---

- Our project studied almost 1,000 cities (Lancet: Barboza et al. 2021) to estimate risk of reduced access to green space.
- 43,000 lives could be saved if WHO recommendation met.
- 65% of Europeans don't have the minimum access.
- Limitation is that the **Quality** of the greenspace was not assessed.



Findings featured in  
WEF video

# Evaluation of the 3-30-300 green space rule and mental health

---

- Rule requires that **every citizen should be able to see at least three trees from their home, have 30 percent tree canopy cover in their neighbourhood and not live more than 300 m away** from the nearest park or green space.
- Mental health status was assessed with the 12-item General Health Questionnaire (GHQ-12), referral to practitioner and medication prescriptions.
- In Barcelona, **only 4.7% of citizens met the 3-30-300 standard.**
- **Residential surrounding greenness (30%),** but not tree window view or access to major green space, was significantly associated with better mental health, less medication use, and fewer psychologist or psychiatrist visits.

***We need to assess biodiversity and person centred perceptions***

## 120 mins. a week in nature linked with good health and wellbeing

---

- Reviews provide consistent support for positive changes in health (Frumkin et al., 2017), mental health and reduced stress (Bratman et al., 2019) with inconsistent findings on psychophysiological parameters (Corazon et al. 2019).
- **White et al. (2019) analysed weekly nature contact** controlling for residential greenspace and other neighbourhood and individual factors.
- Participants (n = 19,806) were drawn from the UK Monitor of Engagement with the Natural Environment Survey (2014/15-2015/16)
- Compared to no nature contact last week, the likelihood of reporting good health or high well-being became significantly greater with contact  $\geq 120$  mins (e.g. 120-179 mins: ORs [95%CIs]: Health = 1.59 [1.31-1.92]; Well-being = 1.23 [1.08-1.40]).

## Decade of Re-Greening

---

- UN Decade of Restoration 2021-2030
- EU Biodiversity Strategy 2030 and Restoration Law
- 30 x 30 commitment to protect at least 30% of land and sea for nature by 2030.
- European cities of more than 20,000 inhabitants to develop ambitious Urban Greening Plans
- Planned 5% increase in urban tree canopy cover

***What are the implications for health and physical activity?***

## Seeing the Wood for the Trees

---

Nature-based interventions are not only low-cost, non-invasive, and likely low-risk, they have potential **benefits** for mental health and psychological recovery, **co-benefits** for the environment and **additional benefits for sustainability**

(Donnelly & MacIntyre, 2019).

Win-Win

## Seeing the Wood for the Trees

---

Nature-based interventions are not only low-cost, non-invasive, and likely low-risk, they have potential **benefits** for mental health and psychological recovery, **co-benefits** for the environment and **additional benefits for sustainability**

(Donnelly & MacIntyre, 2019).



# Nature-Based Interventions

---

- Defined as “planned, intentional activities to promote individuals’ optimal functioning, health and well-being or to enable restoration and recovery through exposure to or interaction with either authentic or technological nature” (Gritzka et al., 2020).
- Narrative synthesis indicates **consistently positive effects on mental health indices and cognitive ability with mixed results for other outcomes.**
- Also includes **nature-based therapy** including Woodlands for Health project with Mental Health Ireland, Coillte, and Get Ireland Walking led by Niamh Ni Chonghaile.

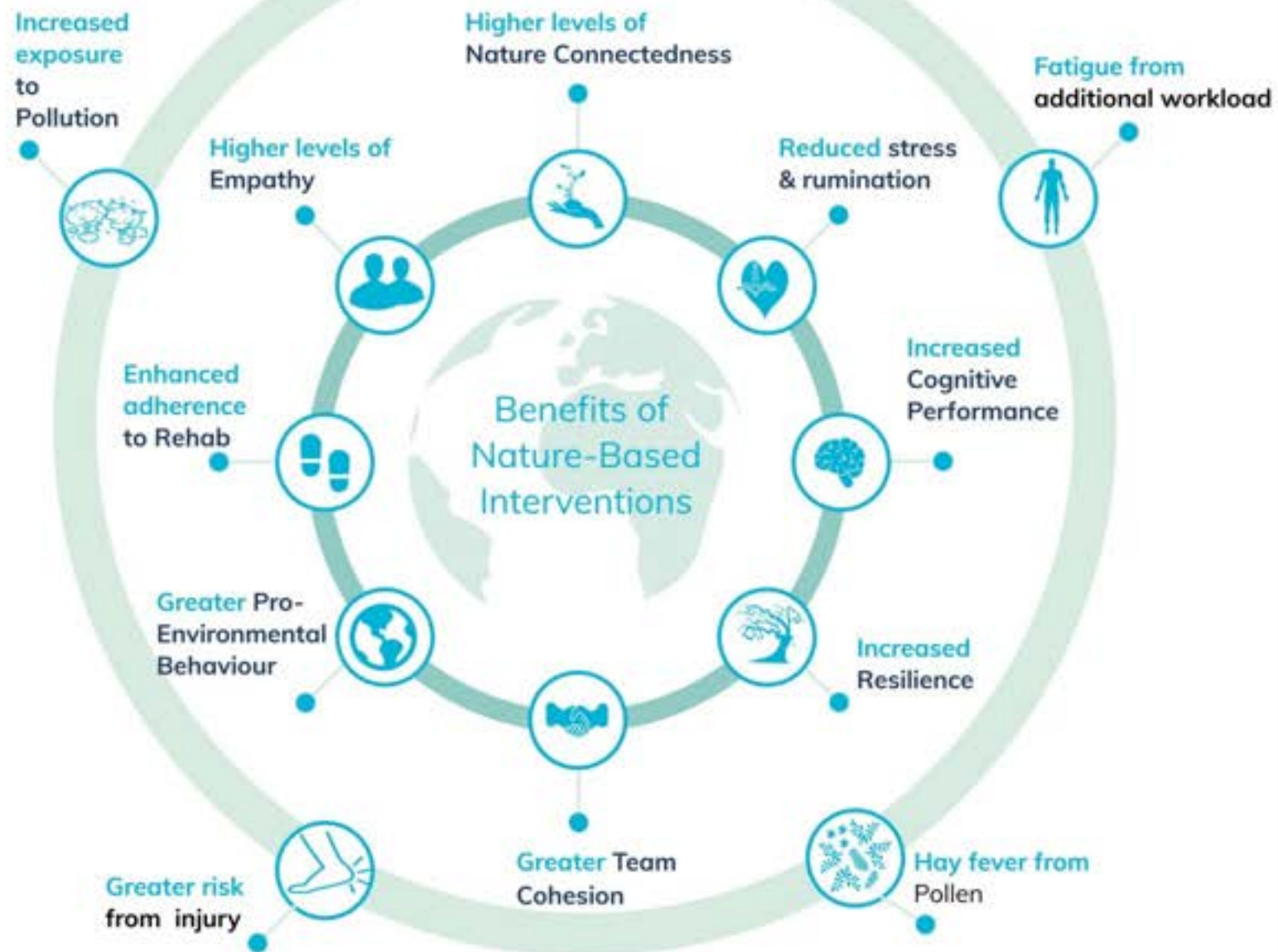
*Is this the new paradigm? NBI's*

## A Walk in the Park

---

- Green and blue exercise protocols are NBI's.
- Only tentative support exists for the additional positive impact above indoor exercise (Lahart et al., 2019).
- Recent workplace based walking study which compared a sea-side walk with an urban walk with positive changes in mood but inconsistent findings with respect to psychophysiological parameters including HRV and blood pressure (Vert et al., 2020).

# Array of benefits, co-benefits, additional benefits and risks



## Quality of Natural Environment is Overlooked

---

- Focus is often only on co-hazards of noise and air pollution.
- Positive factors in natural environment can be assessed from biodiversity to thermal comfort and natural soundscape.
- Biodiversity is linked to human health and mental well-being (Aerts et al. 2019)

*An Environmental Quality Index in our project seeks to assess both positive and negative factors in green spaces.*

## How you feel about *Nature is typically overlooked*

---

- Nature Connectedness is a psychological construct that refers to an individual's sense of their relationship with the natural world.
- Reviews link it with psychological well-being (Capaldi, et al., 2014)
- A large scale survey (N= 1251) reported that emotional connectedness to nature was the strongest predictor of pro-environmental behaviour in comparison to the other factors (Anderson & Krettenauer , 2021).

*Questions remain on how it may be fostered explored by Cassie  
Murphy at Maynooth University*

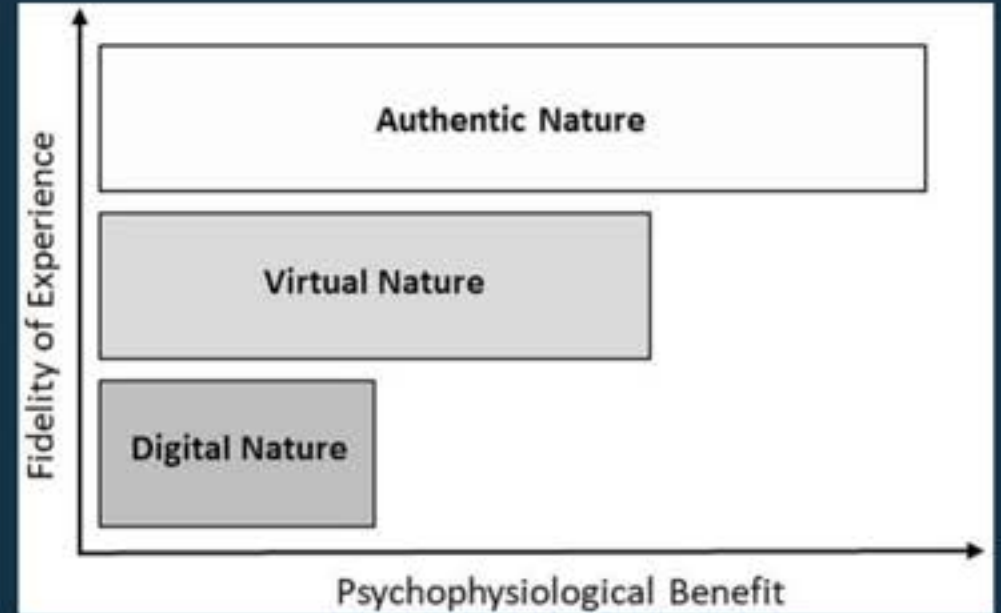
Do you have to 'go' to greenspace to gain benefits?



# Digital and Non-Digital Nature

---

- A virtual 'Nature' lab can enable testing of specific hypotheses about features of nature.
- Future re-greening scenarios can be explored and co-created with citizens.
- Can support non-digital experiences and potentially increase connectedness.



(Litleskare, MacIntyre & Calogiuri, 2020)

*VR offers another path to nature and physical activity*



## Seeing the Wood for the Trees

---

Nature-based interventions are not only low-cost, non-invasive, and likely low-risk, they have potential **benefits** for mental health and psychological recovery, **co-benefits** for the environment and **additional benefits for sustainability**

(Donnelly & MacIntyre, 2019).

Win-Win



## Turn Over a New Leaf

PA can be conceptualized as sustainable behavior linked to **Social SDGs**: improving malnutrition (SDG 2), health and well-being (SDG 3), education (SDG 4), reducing inequalities (SDG 10), sustainable cities (SDG 11), and peace (SDG 16); **Ecological SDGs**, sustainable consumption (SDG 11) combating climate change (SDG 13), life on Land (SDG15).

*PA is more than a health behavior, it contributes to planetary health and sustainability (Nigg & Nigg, 2021)*

Key  
Actions

Research  
Questions



## RESEARCH

How do we optimise access to near nature for diverse groups and Women to promote urban health?

Can we develop nature connectedness as a precursor to nature-based activity to enhance adherence?

What are the clues and cues of nature that provide benefits so they can be optimised in re-greening?

Can we develop tools to readily assess the SDG impact of sustainable physical activity not just carbon footprint?



## Turn Over a New Leaf

PA can be conceptualized as sustainable behavior linked to **Social SDGs**: improving malnutrition (SDG 2), health and well-being (SDG 3), education (SDG 4), reducing inequalities (SDG 10), sustainable cities (SDG 11), and peace (SDG 16); **Ecological SDGs**, sustainable consumption (SDG 11) combating climate change (SDG 13), life on Land (SDG15).

*PA is more than a health behavior, it contributes to planetary health and sustainability (Nigg & Nigg, 2021)*

Key  
Actions

Research  
Questions



Reflect

How can we ensure nature and nature-based interventions are central to our lives

Explore the quality of the natural environment and ensure co-hazards are minimised.

Assess how the activity connects with the UN SDG's and contributes to sustainability.

## Take Home Message

---

- Where you are counts
- Who you are counts
- Where you think you are counts
- Where you see yourself in the future counts.

*Make Nature  
Count*

Further info.



[tadhg.macintyre@mu.ie](mailto:tadhg.macintyre@mu.ie) @tadhgmacintyre  
[www.gogreenroutes.eu](http://www.gogreenroutes.eu)

Learn about our MSc. Environmental  
Psychology program @EnviroPsychMU



# Nature-based interventions for active and sustainable cities: Why Green Space Matters



@TadhgMacIntyre

