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Co-benefits of Green and Blue Exercise: Translating Science into Citizen Science

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EU Societal Challenges

Norway takes Gold!



- On current emissions trajectories there could be **serious population health impacts** in every region in the world in the next 50 years (Lancet, 2015).
- Depression, has the **greatest burden of disease** (WHO, 2017)
- **Well-being is typically overlooked:** Spain is ranked 34th in World Happiness index.

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Is Sport Going Upstream?



Nottingham, UK



Parc del Segre, Catalonia



Charlotte, USA



Rio 2016

Only one of these is good for you



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Naturing the Games

- Olympic games bids have focused on *mitigating environmental hazards* (Donnelly et al., 2016).
- Bids typically from **Mega-Cities**
- Green Environments can be both restorative & potentially **performance promoting** (Rogerson (2016)
- Tokyo, Paris and LA open the door: **Sustainable and salutogenic**

**10,500 Citizen
Scientists?**



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Green Exercise

*Physical activity (exercise?
sport?) in outdoor
natural spaces*

#1

#2

#3

Biophilia Hypothesis

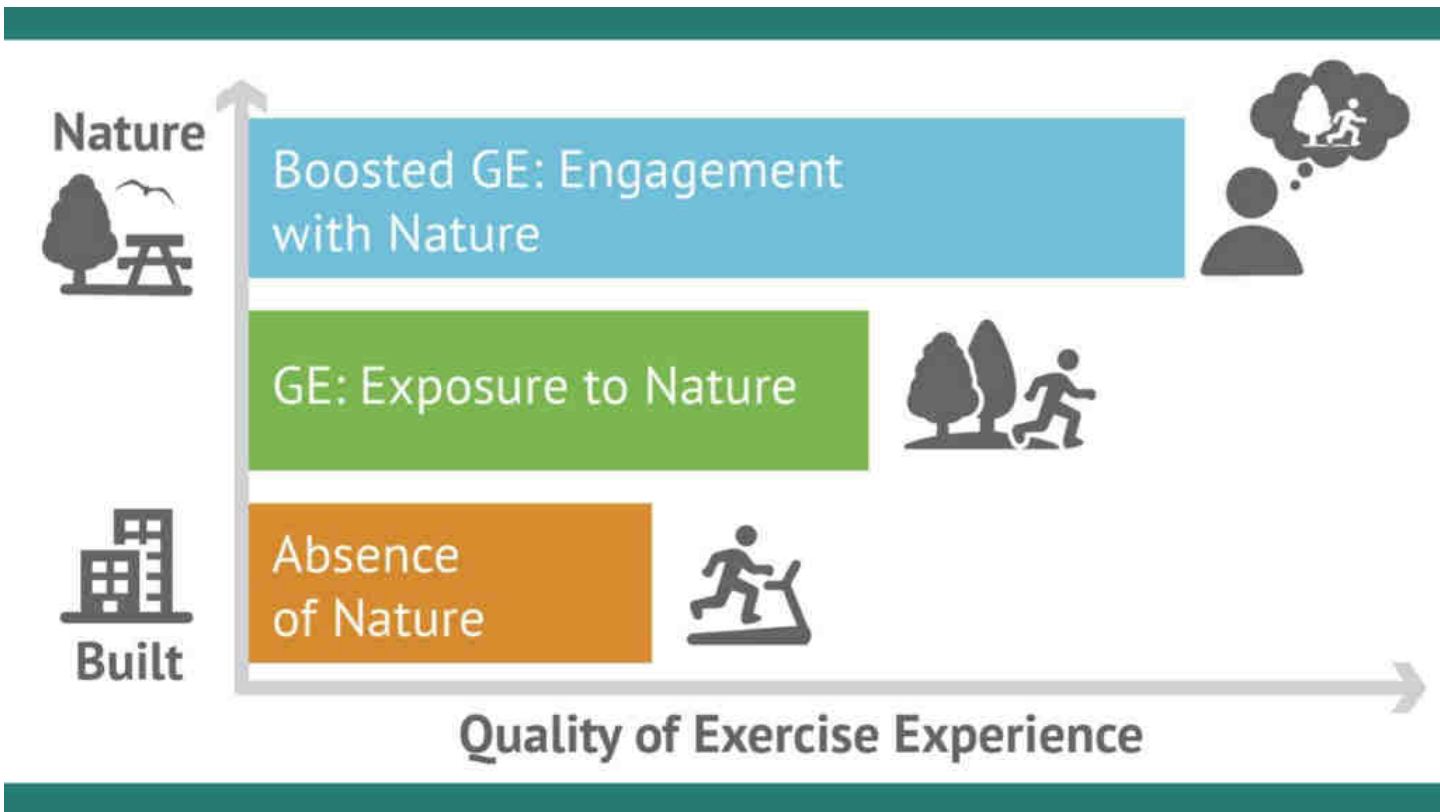
- Wilson (1984) suggested we have an innate need to connect with animals and natural stimuli.
- Supported by early research suggesting two processes:
 1. **Stress Reduction Theory**
 2. **Attention Restoration Theory**
- Superseded by new models and methods grounded in Cognition and Action research.
- **www.phenotype.eu EU funded FP7 study**

Restorative, Recuperative and Good for Environment

- Green space provides local residents with space/facilities to be active through formal or informal physical activity, or providing links that improve connectivity between communities/areas
- Those active in green/natural environments are active for longer.
- Physical activity in green space confers additional health benefits.

Mediated by Engagement







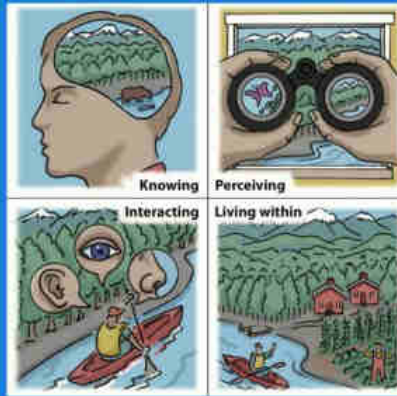
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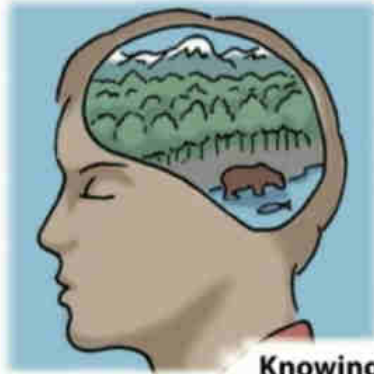


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Blue Exercise

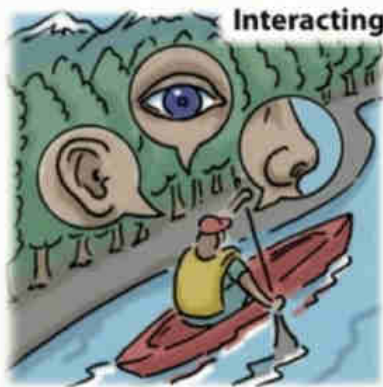




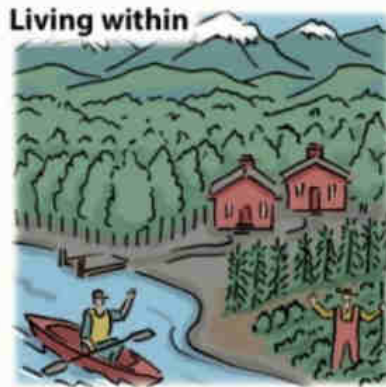
Knowing



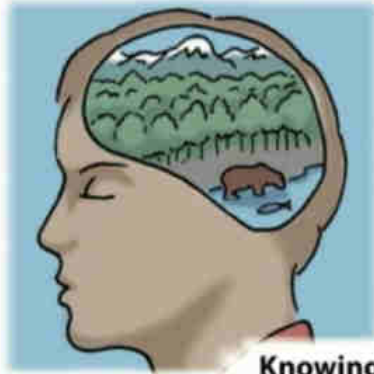
Perceiving



Interacting



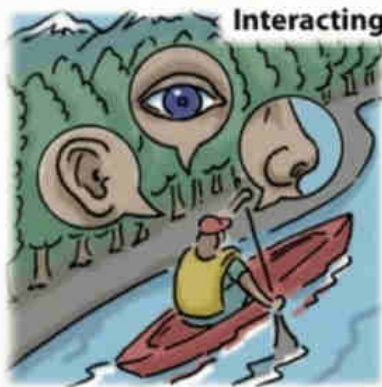
Living within



Knowing



Perceiving

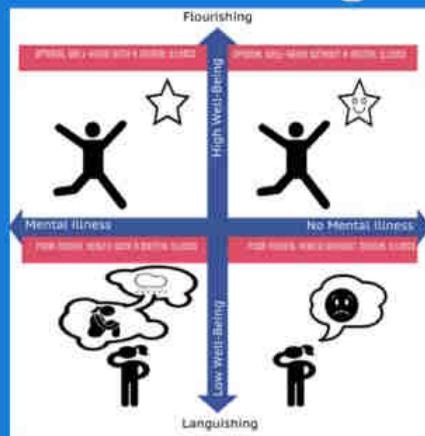


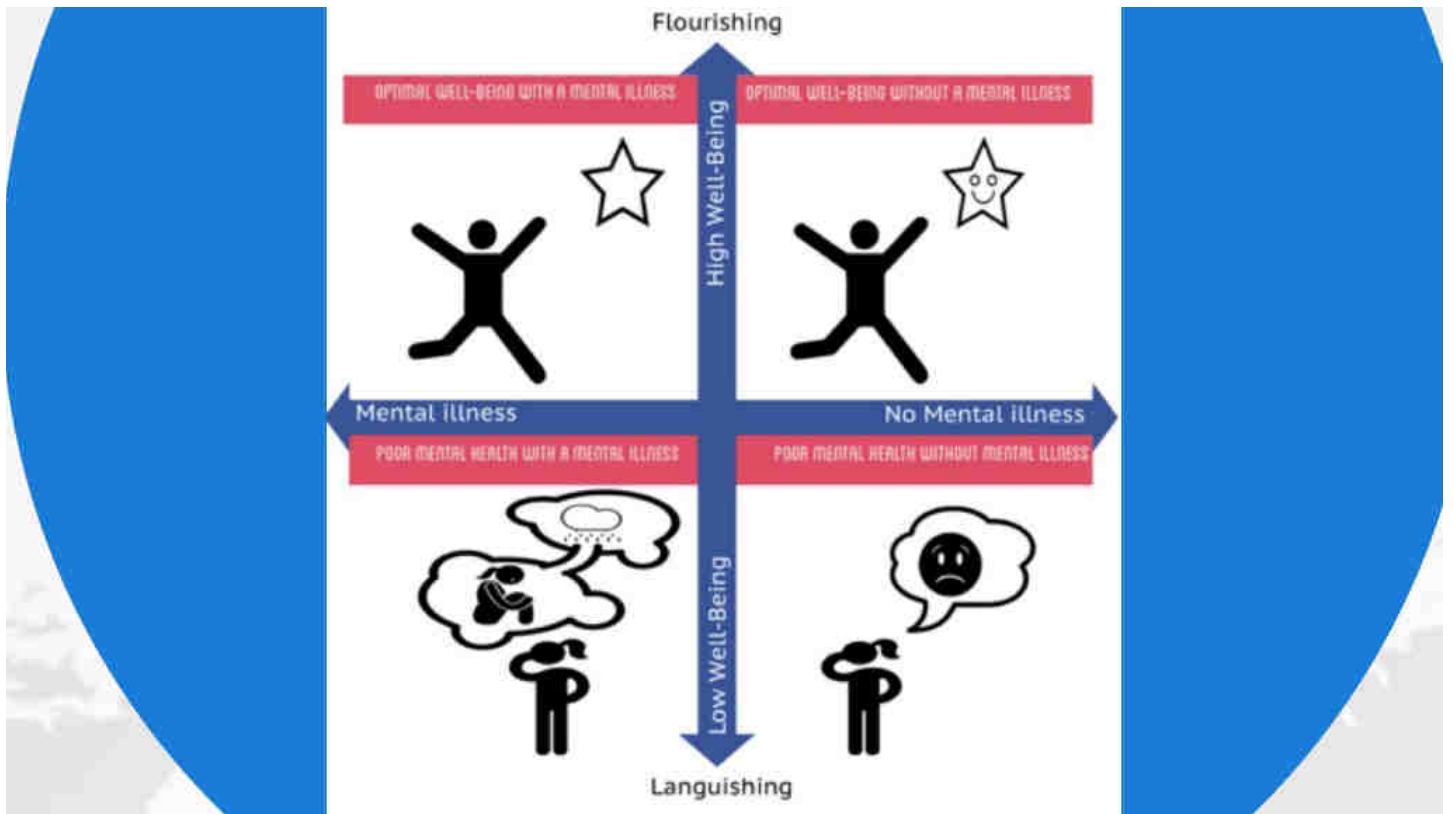
Interacting



Living within

Well-Being





BLUEWAYS-MAPPING EMOTIONS TO PLACES







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Your Brain on Exercise

Decision Making

Prefrontal cortex
complex thinking,
reasoning, multitasking,
problem-solving

Resilience

Pituitary gland
Integrates thoughts
and emotions

Amygdala
fear and anxiety

High Intensity

Hypothalamus
appetite regulation,
cravings and addiction

Skill Sports

Prefrontal cortex
Basal ganglia
attention, switching
between tasks, inhibition

Parietal lobe
visual-spatial
processing

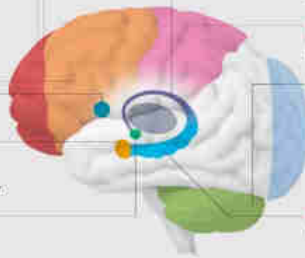
Cerebellum
attention

Imagery

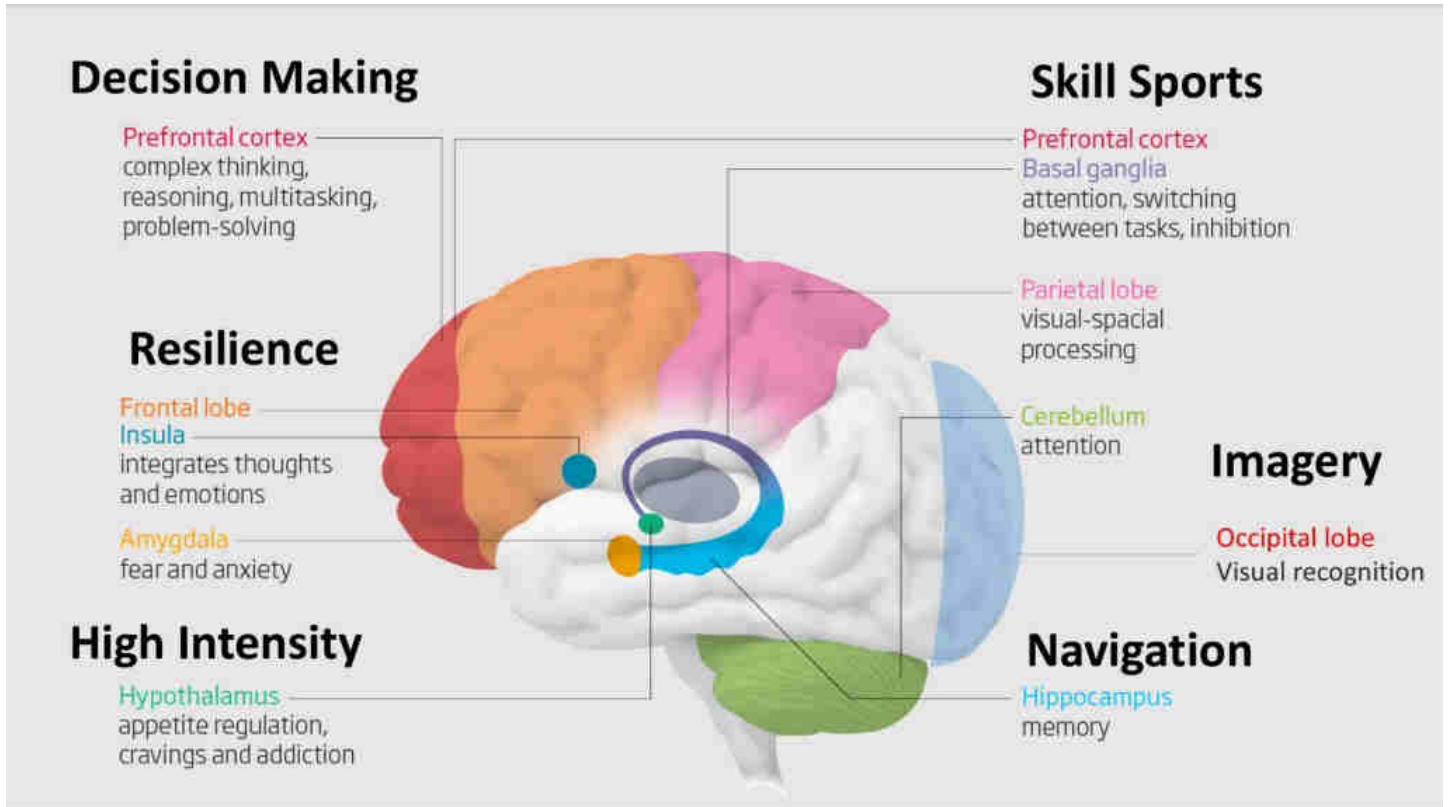
Occipital lobe
Visual recognition

Navigation

Hippocampus
memory



Robust Accessible Memories





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Pro-Social

Pro-Environmental Behaviour?



Positive
Emotions

Savouring

Our Future is
#GettingWet



Positive Emotions

- Conservation of Resources (Hobfoll, 1989)
- Accumulate resources through for example **Challenge**.
- Provides resources we can employ when in distress or under threat.
- Basis of state like resilience (Bryan et al., 2017)

We can share these resources via Social Support and Social Capital



Savouring

Passmore & Holder (2016) showed that simply paying attention to images and emotions of natural (vs built) environment changed mindsets.

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The image shows a worksheet titled 'WOW' in large, colorful letters. Below the title, the word 'Instructions' is written in a bold, black font. There are two numbered instructions: '1. Choose an emoticon to display and a key word to convey the feeling that corresponds with each image.' and '2. Then and also make a comment about how it makes you feel.' Below the instructions, there are three small photographs of natural landscapes: a river flowing through a valley, a group of people on a boat on a lake, and a mountain range under a blue sky.

WOW

Instructions

1. Choose an emoticon to display and a key word to convey the feeling that corresponds with each image.
2. Then and also make a comment about how it makes you feel.



WOW

Instructions

1. Choose an emoticon to display and a key word to convey the feeling that corresponds with each image.
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Savouring

Passmore & Holder (2016) showed that simply paying attention to images and emotions of natural (vs built) environment changed mindsets.



Increased Pro-Social Behaviour which can lead to Pro-Environmental Action.

Our Future is #GettingWet



*Let's ensure its good for Us
and our Environment*



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October 13-14th Limerick, IRELAND



MINDSCAPE SUMMIT

Join a range of international experts on 14th of October to examine how future planning around greenways and blueways can offer nature-based solutions for physical and psychological wellness.



SPEAKERS

Prof. David Sheffield (University of Sheffield),
Prof. Marc Jones and Dr. Chris Gidlow (Staffordshire),
Prof. Juergen Beckman (TUM),
Prof. Mark Nieuwenhuijsen (Barcelona Institute for Global Health),
Prof. Alan Donnelly (UL),
Dr. Niamh Murphy (WIT),
Dr. Annalisa Setti (UCC),
Terri Morrissey CEO of the Psychological Society of Ireland.





TWEET YOUR **#BEACTIVE**
STORY 23-30th SEPT.





HOW DOES IT WORK?



#GOGREEN
green exercise occurs in natural outdoor settings e.g. jogging in a forest



#GOBLUE
blue exercise includes outdoor water based activity- e.g. open-water swimming.

#GOPITCH
field game and settings which are outdoors on marked turf e.g. tennis



#GOGYM all indoor activity from circuits to swimming lengths and exercise classes.



••• ASK OUR ATHLETE AMBASSADORS •••



CATHAL SHERIDAN

- ◆ Running beside the sea gives me perspective on life and gets me chilled out.
- ◆ #BEACTIVE #GOGREEN Running Chilled #Strandhill #SLIGO



JIM KENNEDY

- ◆ The sea is never the same two days in a row-! feel revitalised every time.
- ◆ #BEACTIVE #GOBLUE kayak Revitalised #Fastnet #CORK

TELLING YOUR STORY

ON TWITTER



SNAP A PHOTO

Capture an image of the setting and share



SETTING

Is it indoor or outdoor? Natural Setting, Gym or Pitch?



SPORT

What sport are you performing?



LOCATION

Where are you?
What county are you in?



FEELING

How did your activity make you feel?

Part I THE RESEARCH LANDSCAPE

1. Friend or Foe: Salutogenic Possibilities of the Environment
2. Methodological Challenges and Transdisciplinary Approaches
3. Known Knowns: Review of the Evidence
4. Dose-Response Effects of Green Exercise
5. Self-Determination and Nature Based Solutions to Well-Being
6. Episodic Memory, Mental imagery and mental time-travel
7. Perception vs Reality: The Challenge of Estimating Environmental Quality



Foreword by Keith Wood,
Chair Healthy Ireland



Preface by
Prof. Michael Depledge Exeter

Part II POSSIBLE MECHANISMS

8. Visual Cognition and Multisensory Stimuli
9. Challenge or Threat? Emotional and Affective Responses in Green and Grey Environments
10. Psychophysiological Mechanisms
- 11 Biological Mechanisms
12. Coping With Boredom: Environments as a Psychological Resource
13. Growing Resilience Through Connecting with Nature

Physical Activity in Natural Settings: **Green** Exercise & **Blue** Mind

Part III CASE STUDIES

14. The road to Rio and Trail to Tokyo: From Hazard Management to Greenness Ratings
15. Immersion and Water Sports: Resilience and the Growth Mindset
16. Treadmill, Track and Trail
17. A long walk worth taking: Golf and Greenness
18. Forest Bathing: Seeing the Woods from the Trees
19. Greening the Classroom



Dr. Aoife A. Donnelly



Dr. Tadhg E. MacIntyre

Part IV FUTURE PATHWAYS

20. Wet Mind: Can Neuroscience Illuminate the Landscape?
21. Dreadmills: Is there such a thing as sustainable exercise?
22. Mindfulness and Green Exercise: Enhancing Our Relationship With Physical Activity and the Natural World
23. Embodied Cognition
24. Positive Psychology and the role of Citizen Science in encouraging pro-environmental behaviour
25. Recommendations for action for Individuals, teams and communities.
26. Nature Based Solutions: A Look Ahead



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