



The Link Between Beauty & Health

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The changing nature of disease

- We're **living longer** and overcoming more and more diseases.
- However, **poor lifestyle choices** (e.g. unhealthy eating, lack of exercise, smoking, and excessive alcohol consumption) are contributing to the burden on health.
- There is a rise in the **diseases of 21st Century Living** – obesity, diabetes and depression.
- The cost of healthcare is **increasing exponentially**.



Hypotheses:

- Good health is determined not just by access to medical care, but by a range of factors, including the **quality of the physical environment**.
- The physical environment affects our health and wellbeing and also the healing process itself. Exposure to natural spaces is good for our health.
- **THERE IS A STRONG SYNERGY BETWEEN ENVIRONMENT AND HEALTH.** Protecting and improving the natural environment also protects and improves people's health.

Overview of Evidence

Indirect benefits	Direct benefits
Reduced health inequalities	Moderating impact from extreme weather
Improved mental health	Shelter from UV, noise, wind
Improved physical activity	Carbon sequestration
Reduced obesity	Improved water and air quality
Enhanced social cohesion	Food

AIB improvements to the natural environment can help with the major health problems facing communities.

Reduced Health Inequalities



Reduced Health Inequalities

NAO report: While life expectancy has increased, the gap in life expectancy between the richest and poorest continues to widen.

Evidence links green spaces with decreased health inequalities.

A study in England found that those living near to green spaces lived longer (e.g. 25% lower-all cause mortality in areas with high concentrations of green spaces compared to areas with low concentrations).

This effect was much stronger in the most disadvantaged areas compared to richer areas.

Green spaces reduce the health inequalities between the rich and poor.

Connection between Green Spaces & Public Health

- People living closer to green spaces were more physically active, and less likely to be overweight or obese.
- These trends were independent of income levels or any other socio-demographic characteristic.
- People living furthest from public parks were 27% more likely to be overweight or obese compared to those living closest.



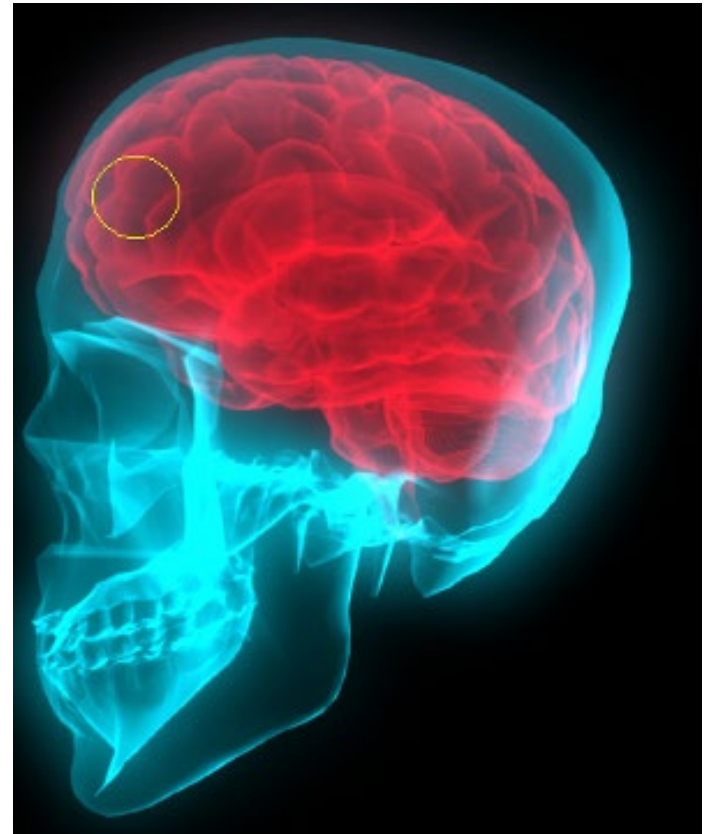
Improved Mental Health



- Nature reduces stress.
- Nature provides attention restoration.
- Nature provides a sense of belonging and self worth.
- Nature reduces symptoms of aggression and crime.

When we come into contact with nature, our concentration levels are dramatically improved.

- **Attention Restoration Theory** formulated by Stephen and Rachel Kaplan in the mid 1980s
- The natural environment allows us to **restore our concentration** levels and **boost our concentration** better than indoor or urban settings because of:
 - In nature, we are away from day-to-day routine.
 - We have opportunities to be fascinated when in nature.
 - It gives us a feeling of exploration & adventure.



The benefits occur in the right frontal cortex of the brain





Remember more

Learn better





Viewing nature is key to recovering from stress.

- **Psycho-physiological stress recovery theory** formulated by **Roger Ulrich** in the mid 1980s
- The response from looking at greenery causes a rapid reduction in stress (**blood pressure, muscle tension, pulse rate**) usually within minutes of exposure to nature and is most obvious when the body is already stressed.



a)



b)



c)

From EEG studies, alpha waves (more calming) are highest in a), second highest in b), and lowest in c)

Odor	Cognitive Performance	Stress	Mood
Lavender	Improved concentration and computational accuracy (Sakamoto et al., 2005; Diego et al., 1998)	Reduced stress and anxiety (Toda & Morimoto, 2008; Lehrner et al., 2005)	Increased relaxation (Diego et al., 1998) Improved mood (Lehrner et al., 2005)
Peppermint	Enhanced attention, alertness, arousal, memory, and task performance (Warm et al., 1991; Moss et al., 2008; Barker et al., 2003)	Increased eustress and reduced distress (Toda & Morimoto, 2011)	
Rosemary	Enhanced alertness and quality of memory (Moss et al., 2003; Moss & Oliver, 2012; Diego et al., 1998)		Stimulated and improved mood (Sayorwan et al., 2012)
Citrus	Improved scholastic performance (Akpinar, 2005)	Reduced stress and anxiety (Matsumoto, Asakura, & Hayashi, 2013; Lehrner et al., 2005; Goes et al., 2012)	Stimulated and improved mood (Warrenburg, 2005; Lehrner et al., 2005)
Cypress		Reduced blood pressure (Chen et al., 2015)	Improved mood and comfort (Chen et al., 2015; Ikei, Song, & Miyazaki, 2015)
Vanilla			Relaxed and improved mood (Warrenburg, 2005)

Table 1. Exposure to natural scents has been observed to have psychophysiological effects. When designing for an olfactory experience, desired responses and odor concentrations should be considered in the context of users, settings, and time of day.



ALZHEIMER'S WING IN HOLT, MICHIGAN:

STUDIES UNDERTAKEN AT THE FACILITY REVEALED THAT EXPOSURE TO NATURE NOT ONLY HELPS PATIENTS, BUT STAFF TOO. EMPLOYEES WHOM ARE LESS PRONE TO BURNOUT CAN IMPACT HR COSTS.

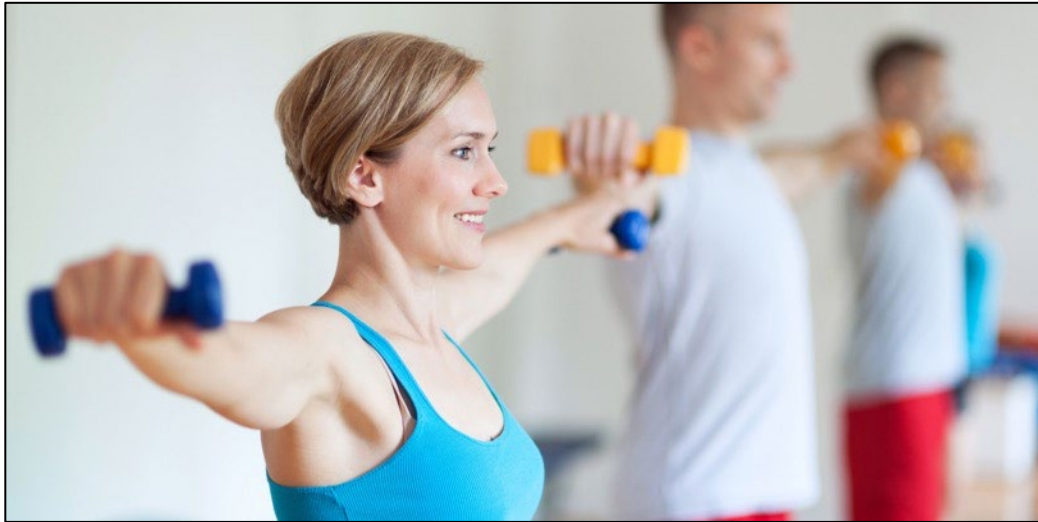


The Louisa, Portland, Oregon
2007 Green Roof Awards of Excellence Winner



Improved physical activity





Case studies of 10 outdoor projects looking at the impact of outdoor activity on mood and self esteem – Jules Pretty et al. (2005)



Questionnaires before and after activity looking at mood and self esteem.

Both these things improved as a result of taking part in the activities.

Research shows that irrespective of the type of green space you're in and irrespective of age, gender, social class or activity, the outdoor environment has a positive impact on mental health.

Shelter from UV, Noise, and Wind

- Chronic exposure to noise such as that from airplanes is associated with hearing impairment and impacts on mental health.
- The trees and vegetation in green spaces provide shelter from UV, reduce noise pollution, and the effects of wind.



People use green spaces to be more active – so green spaces improve physical health.

- Being within access to green spaces can increase levels of physical activity.

Giles-Corti B, Donovan RJ. Relative influence of individual, social environmental, and physical environmental correlates of walking. *Am J Public Health*; **93(9)**: 1583–1589

- Senior citizens live longer with more space to walk and with nearby parks and tree-lined streets near where they live.

Tanaka A, Takano T, Nakamura K, *et al.* Health levels influence by urban residential conditions in a megacity — Tokyo. *Urban Stud*; **33**: 879–945

- For every 10% increase in green space, there was a reduction in health complaints equivalent to a reduction in age of five years.

De Vries, S. Nature and health; the importance of green space in the urban living environment. Proceedings of the symposium 'Open space functions under urban pressure'. Ghent: 19–21



Improved air quality

- Air pollution is associated with respiratory illness and arises mainly from road traffic.
- Air pollution was estimated to reduce life expectancy by 7 to 8 months.
- Green spaces improve air quality (e.g. trees can **cut particulate pollution by as much as 25%**).







Reduced Obesity



Green Spaces Encourage Social Interaction



Greater life satisfaction





Disaster resilience

*The highway from one merchant town to another shall be cleared so that **no cover for malefactors** should be allowed for a width of two hundred feet on either side; landlords who do not effect this clearance will be answerable for robberies committed in consequence of their default, and in case of murder they will be in the king's mercy. — Statute of Winchester of 1285, King Edward I*



Before & After

Crime Busting Effects

Crime and Nature

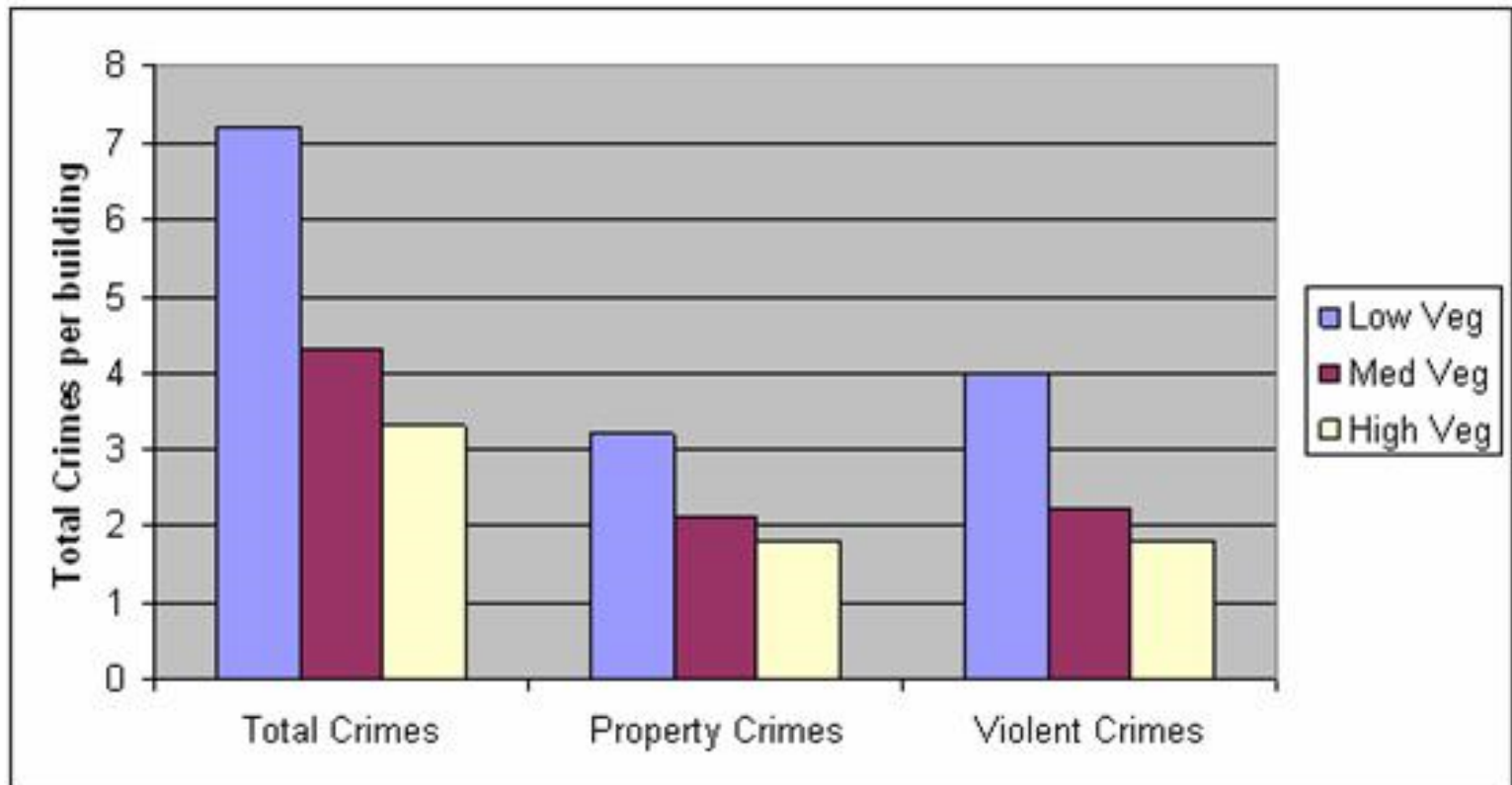
Kuo F, Sullivan WC, (2001) Environment and Crime in the Inner City: Does vegetation Reduce Crime. Environment and behaviour

The results of this study show that those buildings with the highest amount of vegetation had:

52% fewer total crimes

48% fewer property crimes and

56% fewer violent crimes





**Lower
recidivism rates**

Safer



Drivers

IN SUMMARY

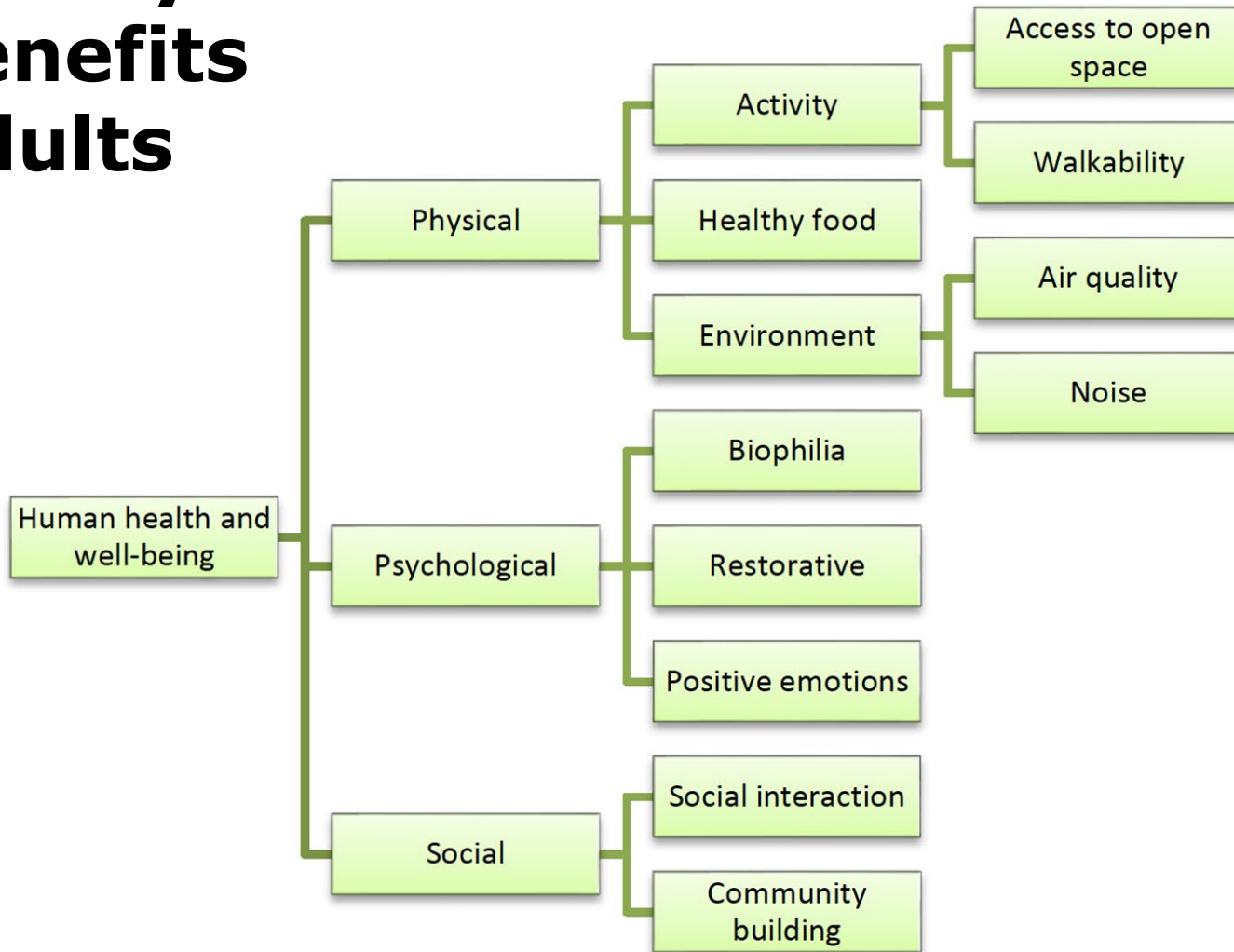
What does the evidence suggest?

- Good health is determined not just by access to medical care, but by a range of factors, including the quality of the physical environment.
- The physical environment affects our health and wellbeing and also the healing process itself. Exposure to natural spaces is good for our health.
- We can shape our physical environment to enable people to make healthier choices and also mitigate against the health impacts of environmental issues such as climate change.

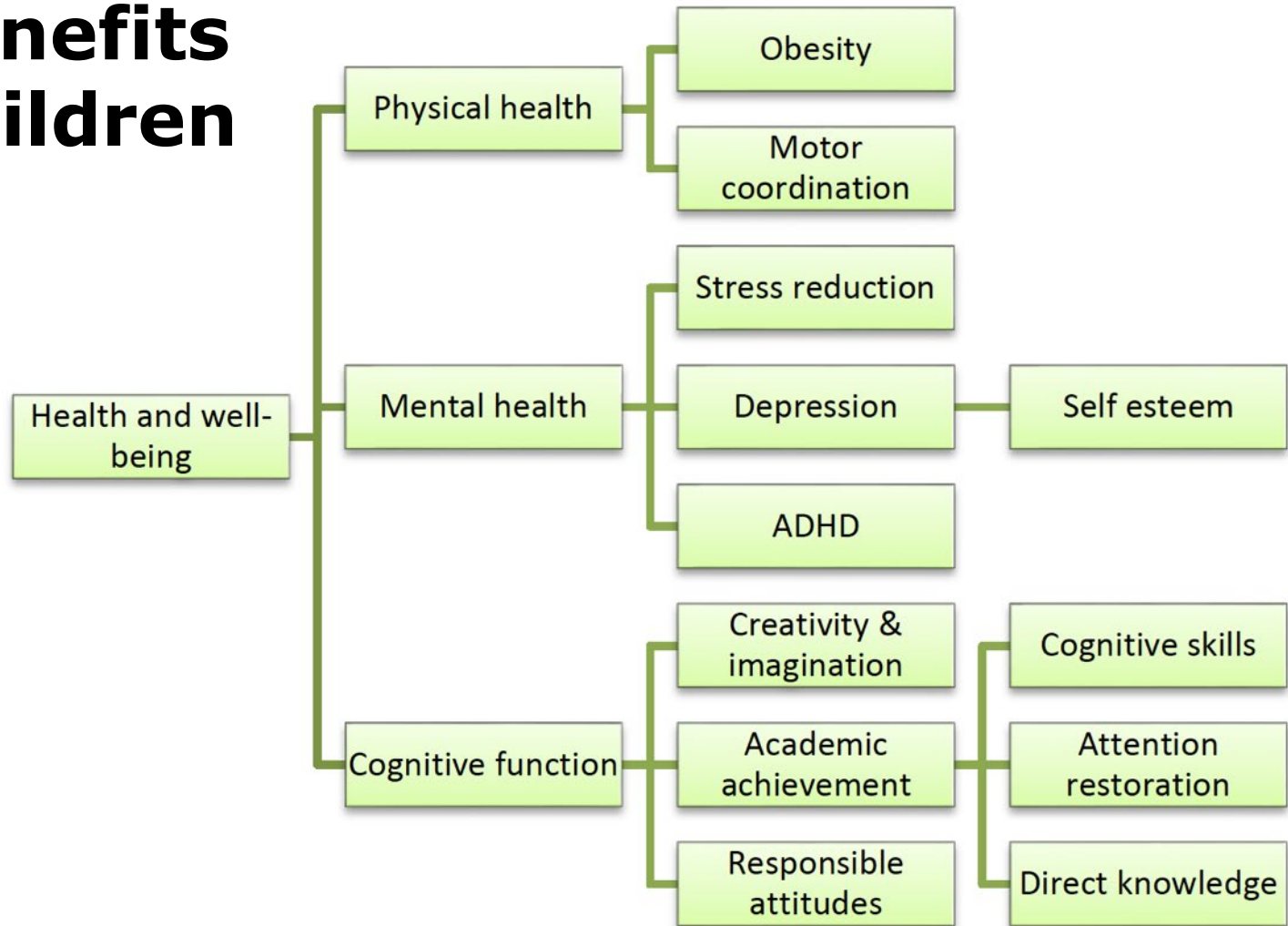
STRONG SYNERGY BETWEEN ENVIRONMENT AND HEALTH.

Protecting and improving community environments protects and improves people's health.

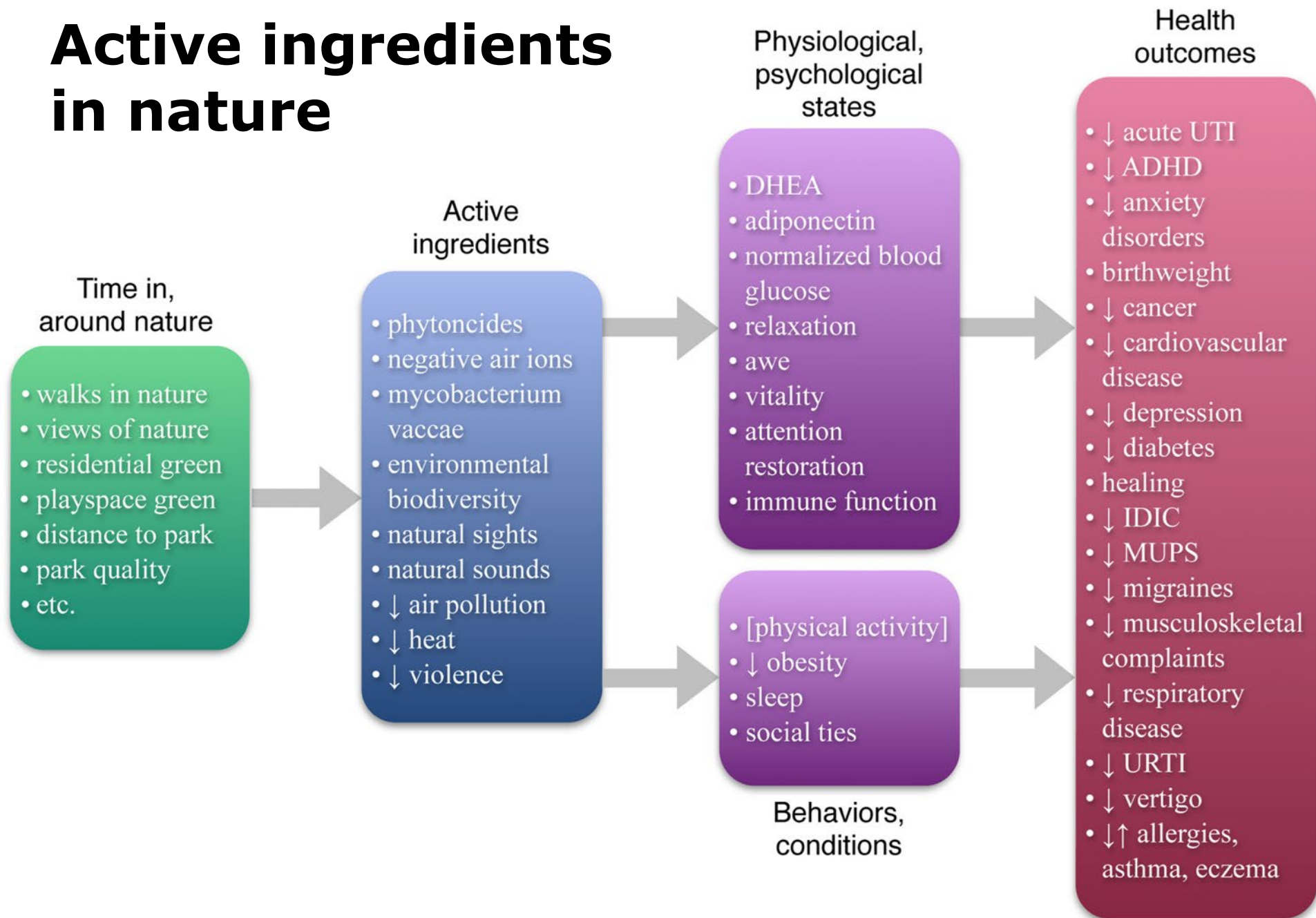
Summary of Benefits to Adults



Summary of Benefits to Children



Active ingredients in nature





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