

A background image of a young child wearing a striped beanie and a dark jacket, standing in a forest with bare trees and fallen leaves. The image is dimmed to allow text to be read.

# The Impact of Nature on Child Development: A review of the evidence through the lens of a local pediatrician

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# Child Development

*Def.* The physical, intellectual, social, and emotional changes that occur from birth through the end of adolescence.







## Case 1

EC is a healthy 6-year-old child



# Nature and Stress Reduction

- Exposure to nature decreases perceived stress or is a buffer for daily stress in children.<sup>1</sup>
- Exposure to green school yards is associated with less perceived stress and improved ability to focus and form supportive social groups.<sup>2</sup>
- A qualitative study using the Strengths and Difficulties Questionnaire showed that high quantity and quality green space was associated with fewer difficulties and improved peer relationships.<sup>3</sup>

<sup>1</sup>Wells and Evans. Environment and Behavior. 2003

<sup>2</sup>Chawla et al. Health and Place. 2014.

<sup>3</sup>Amoly et al. Environmental Health Perspectives. 2014.



A map of Pittsburgh, Pennsylvania, illustrating the 'Pittsburgh System of Green'. The map shows the city's layout with major roads and the Ohio River to the north. Green areas are highlighted in two shades: a light green for the 'Green Network' and a darker green for 'Parks and Open Space'. Labeled neighborhoods include Riverview, Highland, Emerald View, Schenley, and Brick. The text 'Greater time spent by adults nearby to nature improved mental and social health.<sup>1</sup>' is overlaid on the map.

Greater time spent by adults nearby to nature improved mental and social health.<sup>1</sup>

Residents in greener neighborhoods reported less depression and more connectedness to nature.<sup>1</sup>

**PITTSBURGH  
SYSTEM OF GREEN**

-  Green Network
-  Parks and Open Space

<sup>1</sup>Cox et al. Int. J of Research and Public Health. 2017.

# Nature

Several studies, show the positive impact of wilderness programs on self-esteem, autonomy, and decision making.



## CASE 2

RJ is a 14 year old boy who was overweight and lost 20 pounds in the last 2 years





# Nature and Physical Activity

- Physical activity improves health outcomes including adiposity and cardio-vascular health.<sup>1</sup>
- Nature play positively impacts physical activity in children, although it may not differ from traditional play spaces.<sup>2</sup>
- The prevalence of being overweight was up to 41% lower among those children spending more time outdoors at baseline.<sup>3</sup>

<sup>1</sup>Strong et al. Journal of Pediatrics. 2005.

<sup>2</sup>Dankiw et al. Plos One. 2020

<sup>3</sup>Cleland et al. Int Journal of obesity. 2008



# Case 3: JM

- JM is a 14-year-old boy with obesity asthma, ADHD and a history of truancy and marijuana use
- JM's mother, who has a history of mental health issues and has overcome substance abuse, is focused on treating him in a holistic approach, including going out for walks in nearby parks
- Can nature help JM?

## THE MORE THEY BURN THE BETTER THEY LEARN



YOUR CHILD	AMOUNT OF ACTIVITY	VARIOUS ACTIVITIES	ACADEMIC ACHIEVEMENT
	60+ MIN	(Basketball, Bicycle, Swimmer)	A A B A

**Did you know that kids who are physically active get better grades?**

Research shows that students who earn mostly **A**s are almost twice as likely to get regular physical activity than students who receive mostly **D**s and **F**s.

Physical activity can help students focus, improve behavior and boost positive attitudes. Do what you can to help your child be physically active, be it running, biking or swimming. Any type of physical activity is good, and 60 minutes a day is best. Their grades will thank you!



FOR MORE INFORMATION, VISIT  
[MakingHealthEasier.org/Burn2Learn](https://www.cdc.gov/physicalactivityandunhealthydietarybehaviors/)

SOURCES | CDC. Physical Inactivity and Unhealthy Dietary Behaviors and Academic Achievement. CDC. The association between school based physical activity, including physical education, and academic performance. Atlanta, GA: U.S. DHHS; 2010.



# Nature and ADHD

Children with ADHD score higher on attention testing after a 20 min walk in the city park vs two other urban settings<sup>1</sup>

Green outdoor settings seem to reduce ADHD symptoms in children<sup>2</sup>



<sup>1</sup>Faber and Kuo. *Journal of Attention Disorders*. 2009.

<sup>2</sup>Kuo and Faber. *American Journal of Public Health*. 2004



# Nature and Behavior

In children with behavioral issues, parents reported less problem behaviors after a therapeutic outdoor program





# Nature and mental health

Greater exposure to nature is associated with lower maternal reports of conduct issues, anxiety and depression



## Case 4:

MR is an 8-year-old boy with Type 1 Diabetes and Autism. He is nonverbal and his behaviors are difficult to manage. He spends over 4 hours per day on a screen.





A child wearing a red and black plaid shirt and blue jeans stands in a field of tall, dry grass. The child is holding a small, yellow and black model airplane in their right hand, raised towards the sky. The background shows rolling hills under a hazy, golden sky. A semi-transparent white circle is visible behind the child's head. In the top right corner, there is a solid yellow rectangle.

Parents and caregivers of children with autism reported **motor-sensory**, **emotional**, and **sensory** benefits from contact with nature.



# Limitations of The Evidence

- Studies must often rely on interpretation or caregiver reports
- Participants often want to support the program
- Participants are often self selected
- Activity vs environment
- Small sample sizes
- Variety of study designs



# Action points

- Go outside, enjoy nature, wander and wonder
- Encourage children in your life to explore nature and to be curious; show them you care about them and nature
- Keep nature accessible by partnering with local organizations and institutions
  - local schools and parks
  - Phipps Conservatory and Botanical Gardens
- Protect and expand existing nature
  - pick up trash at local park or on your next hike
  - join groups going out to maintain trails
  - write to your government officials, vote





# Thank You

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