



Abstract Title: Exposure to nature improves attention in typically developing children

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Introduction

Previous research has documented many benefits of spending time in nature, including improved well-being, increased self-esteem, and more positive perceptions of quality of life (Keniger, Gaston, Irvine, & Fuller, 2013). Most studies have been correlational in design and have been limited to adult samples. Children spend less time in nature than ever before; Louv (2005) coined the term “nature deficit disorder” to capture the potential cognitive, psychological, and physical problems associated with disconnection from nature in children. In a sample of Atlantic Canadian children, we found that only 3.5% of time was spent in natural settings. This lack of nature exposure may impact children’s health in a variety of ways, including cognitive abilities, and particularly attention. One of the major theories regarding the mechanisms through which nature benefits human well-being is the Attention Restoration Theory (ART; Kaplan, 1995), which suggests contact with nature replenishes endogenous attention (e.g., directed, voluntary attention). There is currently a lack of rigorous research on how contact with nature is associated with attentional performance in children.

Objectives

To examine if and how attention changes, pre- and post-exposure to nature, compared to an urban environment, in a sample of children and adolescents.

Methods

We employed a quasi-experimental design using a sample of typically-developing children to investigate performance on computerized endogenous and exogenous attention tasks before and after exposure to one of two treatments: a thirty-minute walk in either an urban ($n = 30$) or natural (forested, $n=30$) environment. The two experimental groups were closely matched with regard to sex ratio, age, IQ, and Connectedness to Nature ratings. Attention was assessed using the Combined Attention Systems Test (CAST), a state-of-the-art assessment tool designed to evaluate exogenous and endogenous attention characteristics. Bayesian hierarchical modeling of both response times and errors was employed to evaluate components of attention and its interactions with session and group.

Results

The results support credible effects of the nature intervention on two measures of endogenous attention, but not on any of the measures of exogenous attention, consistent with predictions of ART.

Conclusion

The findings demonstrate that attentional abilities in children and adolescents can improve following nature exposure. Given the small proportion of time children spend in nature and growing concerns about attention difficulties, we suggest that it is important to provide opportunities to increase children's time in nature and thus, improve the cognitive health of developing children.

References

- Kaplan S. (2005). The restorative benefits of nature: Toward an integrative framework. *Journal of Environmental Psychology*, 15, 169–182.
- Keniger, L.E., Gaston, K.J., Irvine, K.N., & Fuller, R.A. (2013). What are the benefits of interacting with nature? *International Journal of Environmental Research and Public Health*, 10, 913-935.
- Louv, R. (2005). *Last child in the woods: Saving our children from nature deficit disorder*. New York: Workman Publishing Company.

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