Dr. Monica Shire
Nature-Informed Therapy

When I tell people that I am a certified Nature-Informed Therapist, most people look at me quizzically and ask, "What is that?" I explain that I facilitate a client's experience in therapy with nature, in nature and through nature. Nature is a co-therapist, providing "vitamin N (nature)" for our clients. Nature-Informed Therapy (NIT) has shown extensive correlational positive outcomes for growing children in a number of fields, including the areas of physical, social, and cognitive development. Below I will outline vital research which shows WHY time in nature benefits everyone.

Benefits of Nature-Informed Therapy (NIT)

NIT and its benefits in early childhood are supported by many recent studies. These studies show that the time we spend in the natural environment affects not only the health of the WHOLE person (cognitive, emotional, social, and physical), but also the time we were in contact with nature during childhood. Research has shown that children who experienced childhood in totally metropolitan settings are 55% more likely to contract mental illness than children who grew up non-metropolitan areas (Engemann et al., 2019). Below I explore the physical, social/emotional, cognitive and familial influences of NIT.

Physical Benefits

Studies have shown that children who regularly spent time in nature may have better eyesight over their peers and choose healthier foods. For instance, He (2015) found that children in China are spending less time outdoors, which has resulted in epidemic levels of nearsightedness in East and Southeast Asia, with rates in some places reaching almost 90% of 18 year olds. The authors go on to state that "younger children who develop myopia are at a higher risk to develop pathological myopia, or extreme nearsightedness to the point of vision loss" (He et.al., 2015, p. 1). This same study also found that with as little as 40 minutes of additional outdoor time than a control group, almost 10% less children in this study developed nearsightedness. Additionally, Gwiadza et al. (2014), found that children, who

have two nearsighted parents, who spend zero to five hours outside each week have a 60% chance of becoming nearsighted but the risk drops to 20% when outdoor time exceeds 14 hours a week.

Social/Emotional Benefits

Social-emotional development is a critical dimension of growth in early childhood. There are benefits in terms of well-being, self, motivation and prosocial behavior. Neill and Richards (1998) directed three meta-analytic studies considering the impacts of nature-based programs and included 12,000 participants. Their research measured the effects of this type of activity on self-concept, self-confidence and locus of control. A small to medium retained impact was found in these areas in participants. They also found that time in nature has many long-term effects at home and in school such as improved concentration, communication and learning (Neill & Richards, 1998). The American Academy of Pediatrics' 2007 report on the importance of play ascertains that play protects children's emotional development while living a jam-packed lifestyle and lack of down time can be a source of stress, anxiety and may even contribute to depression (Ginsburg, 2007).

One study found that children's feelings of anxiety lessen promptly after seeing green spaces for as little as 20 minutes, a straightforward, fast and efficient counteractant for stressed children (Kuo et al., 2004). Nature helps children feel less stress and interact in positive ways, but a 2009 study at the University of Rochester takes it a step further and reveals that being in, or even looking at, nature also makes human beings behave in a more caring manner (Weinstein et al., 2009). In 2009, Weinstein and colleagues found that people are more thoughtful when they're around nature. This controlled study examined 370 adults, male and female, in four sub-studies. The subjects in the experimental (nature) group were shown to exhibit more prosocial and other-focused responses as compared to the control or non-nature group. Each group completed surveys before and after each sub-study which yielded similar results across studies.

Studies have also shown that outdoor time positively impacts depression as well as self-discipline in children. In a study involving girls and boys between 7 and 12 years of age, more delay of gratification was found when they worked on tasks that required attention while they were in green spaces

(Faber Taylor et al., 2002). In addition, outdoor time has the potential to alleviate childhood depression, which is characterized by low mood, anxiety, and loss of self-esteem, among other symptoms (Delate et al., 2004). According to Delate et al. (2004), antidepressant use is increasing in approximately two million persons under the age of 18. Throughout the four year study, antidepressant use increased by 49%, with the quickest developing section of clients discovered to be 0-5 year-old children. Further and just as important, time in nature has the potential to develop students' connections to their environment through an understanding that they are a part of a symbiotic ecosystem, exploring place-based interactions looking more deeply into questions such as how we connect to the Earth and our purpose (Woodhouse & Knapp, 2000).

Cognitive Benefits

School readiness and the transition from preschool to kindergarten is a particular area of importance in the early years. This transition considers the whole child and includes many aspects of development, such as social emotional learning as well as the development of motor skills and approaches to learning which are all predictors of academic and social success (Ladd & Price, 1987; National Association for the Education of Young Children [NAEYC], 1996). There are NIT benefits in terms of school readiness, peer play, student motivation, engagement, school readiness and concentration.

Berman and colleagues (2009) stated that walking through nature can reinvigorate the brain circuits responsible for mental fatigue and even increase executive function tasks (Berman et.al., 2009). Improved attention, an imperative factor in learning, is another shown benefit of time in nature. The Centers for Disease Control (CDC, 2021) presently gauges that 4.5 million kids aged 5-17 years have been determined to have Attention Deficit Hyperactivity Disorder (ADHD) with the disorder expanding 3% every year between 1997 and 2006 (Bloom & Cohen, 2006).

Li and Sullivan (2016) showed that concentration and self-control improves if students perform academic tasks in classrooms with open windows that overlook green spaces. This randomized controlled experiment included 94 secondary education students across five separate urban and rural high schools. The researchers used three different classrooms in each school; one with no windows, one with windows

that viewed a manufactured space and one overlooking a green space. The data analysis indicated that the participants in the third classroom, overlooking green space yielded significantly better test performance in relation to attention. Measuring physiological measures of stress, these same participants also showed an accelerated recovery from stressful events more so than the two other classrooms.

Furthermore, and just as important, time in nature has the potential to develop students' connections to their environment through understanding that they are a part of a functional ecosystem, exploring interactions between species and places, and even looking more deeply into questions such as How can create a connection to the earth? and, What is my human purpose? (Woodhouse & Knapp, 2000).

Family Impacts

Research shows that children who participate in nature-based programs with a farming component tend to increase their fruit and vegetable consumption (Azuma & Feenstra, 2007), and have a long-term affinity for vegetables as compared to a control group (Morris & Zidenberg-Cherr, 2002). Cordiano and colleagues (2020) found that families of children who participated in a nature-based program had more conversations about growing food and increased their own time enjoying the outdoors with family. These findings support research that children who are involved with nature-based programs are more likely to understand the origins of food (Health Impact Assessment, 2011; Savoie-Roskos et al., 2017).

In 2020, education has changed as we know it with online and hybrid models dominating most countries and states' educational programs. Children as young as two are "zooming" for preschool social time and instruction. In a survey by Clutch, 44 % of Americans reported working from home at least five days a week during the pandemic (Roddy et al., 2020). Many of these parents are working while assisting their children with online schooling. Kam (2020) reported that the greater part of Americans (56%) detailed that stress identified with the pandemic has resulted in a negative emotional impact. These include issues with eating and resting, drinking too much alcohol, regular migraines or stomach pain, limited temper, and other medical conditions. Among frontline health care workers and their families,

64% reported decreased mental health, as did 65% of those who had lost income (Kam, 2020). Charles et al. (2009) discussed the importance of helping children connect with nature as a change in our culture and in turn children will develop into happier and smarter kids.

Conclusion

As stated above, time in nature has shown extensive correlational positive outcomes for growing children in a number of fields, including the areas of physical, social, and cognitive development. Furthermore, and just as important, time in nature has the potential to develop children' s connections to their environment through understanding that they are a part of a functional ecosystem, exploring interactions between species and places, and even looking more deeply into questions such as “How do I connect to the Earth?” and “What is my purpose as a human being?” (Woodhouse & Knapp, 2000). The ongoing impact of nature-based experiences reach far beyond the actual lessons, with more immediate benefits in the class and home environments, including improved concentration, learning, self awareness, and interpersonal communication (Neill & Richards, 1998). All of these benefits point to a “yes” for time in nature and nature-informed therapy.

References

Azuma, A., & Feenstra, G. (2008). Do farm-to-school programs make a difference? Findings and future research needs. Retrieved June 03, 2021, from https://www.tandfonline.com/doi/full/10.1080/19320240802244025

Berman, M. *et al.* (2009). The cognitive benefits of interacting with nature. *Psychological Science*, 19, 1207-1212.

Bloom, B. & Cohen, R.A. (2006) Summary Health Statistics for U.S. Children: National Health Interview Survey, 2006. National Center for Health Statistics. Vital Health Stat 10 (234).

CDC (2021). How much physical activity do children need? Retrieved June 02, 2021, from https://www.cdc.gov/physicalactivity/basics/children/index.htm

Charles, C. , Louv, R., Bodner, L. (2009). A report on the movement to reconnect children to the natural world. Children & Nature Network. Retrieved from http://www.childrenandnature.org/downloads/CNNMovement2009.pdf.

Cordiano, T.,Lee, A, Wilt, J, Elsesaz, A, Damour, L. & Russ, S, (2019). Nature-Based Education and Kindergarten Readiness: Nature-Based and Traditional Preschoolers are Equally Prepared for Kindergarten. *The International Journal of Early Childhood Environmental Education*, 6 (3), p.18

Delate, T., Gelenberg, A. J., Simmons, V. A., & Motheral, B. R. (2004). Trends in the use of antidepressants in a national sample of commercially Insured pediatric Patients, 1998 to 2002. *Psychiatric Services*, *55*(4), 387–391. https://doi.org/10.1176/appi.ps.55.4.387

Faber Taylor, A. *et al.* (2002). Views of nature and self-discipline: evidence from inner city children. *Journal of Environmental Psycholo*gy. 22, 49–63.

Ginsburg, K. (2007). The importance of play in promoting healthy child development and maintaining strong Parent-child bonds. Retrieved June 02, 2021, from https://pediatrics.aappublications.org/content/119/1/182?ijkey=95004400e3fd931418a471b1d153861cdfd6fa70&keytype2=tf_ipsecsha#sec-5

Gwiazda, J., Deng, L., Manny, R., & Norton, T. T. (2014). Seasonal variations in the progression of myopia in children enrolled in the correction of myopia evaluation trial. *Investigative Ophthalmology & Visual Science, 55*(2), 752. doi:10.1167/iovs.13-13029

He, M., Xiang, F., Zeng, Y., Mai, J., Chen, Q., Zhang, J., Morgan, I. G. (2015). Effect of time spent outdoors at school on the development of myopia among children in China. *JAMA, 314*(11), 1142. doi:10.1001/jama.2015.10803

Health Impact Assessment: HB 2800. (2011).Oregon Farm to School and School Garden Policy. Upstream Public Health. Retrieved December 19, 2019, from https://www.issuelab.org/resource/health-impact-assessment-hb-2800-oregon-farm-to-school-and-school-garden-policy.html.

Kam, K. (2020). Mental Health an Emerging Crisis of COVID Pandemic. Retrieved October 25, 2020, from https://www.webmd.com/lung/news/20200508/mental-health-emerging-crisis-of-covid-pandemic

Kuo, PhD, Frances E., & Andrea Faber Taylor, PhD. (2004) "A Potential Natural Treatment for Attention-Deficit/Hyperactivity Disorder: Evidence From a National Study." *American Journal of Public Health* 94.9. http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=1448497

Ladd, G. W., & Price, J. M. (1987). Predicting children's social and school adjustment following the transition from preschool to kindergarten. *Child Development*, 57, 1168-1189.

Li, D. and Sullivan, WC (2016). Impact of views to school landscapes on recovery from stress and mental fatigue. *Landscape and Urban Planning* . 148, 149-158.

Morris, JL & Zidenberg-Cherr, S (2002). Garden-enhanced nutrition curriculum improves fourth-grade school children's knowledge of nutrition and preferences for some vegetables. *Journal of the American Dietetics Association,* 102, 91–93

National Association for the Education of Young Children [NAEYC]. (1996).NAEYC's position statement on school readiness. NAEYC.

Neill, J. T., & Richards, G. E. (1998). Does outdoor education really work? A summary of recent meta-analyses. *Australian Journal of Outdoor Education*, *3* (1), 2–9.

Roddy, S., McKeon, K., & Krishnaswamy, V. (2020). *Working From Home During the Coronavirus Pandemic: The State of Remote Work*. Working From Home During the Coronavirus Pandemic: The State of Remote Work | Clutch.co. https://clutch.co/real-estate/resources/state-of-remote-work-during-coronavirus-pandemic.

Weinstein, N., Przybylski, A. K., & Ryan, R. M. (2009). "Can nature make us more caring? Effects of immersion in nature on intrinsic aspirations and generosity." *Personality and Social Psychology Bulletin*, 35, 1315-1329.

Woodhouse, J.L., and Knapp, C.E. (2000). Place-Based Curriculum and Instruction: Outdoor and Environmental Education Approaches. *ERIC Digest*. www.eric.ed.gov