

# Guidance on Nature's Benefits in the Development of Children and Adolescents

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DEDICATED TO THE HEALTH OF ALL CHILDREN®

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# 01. Presentation



This document is aimed at pediatricians, educators, urban planners and families, and provides a series of considerations and perspectives on the importance of nature in promoting the health and development of children and adolescents. In the following sections, the reader will find evidence-based information on the relationship between playing and being in nature and the healthy development of children and adolescents, as well as recommendations aimed at each of these audiences. 🌿

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## 02. Context



Despite common sense and clinical pediatric experience recognizing the benefits that children and adolescents gain from outdoor leisure and learning activities in nature, urban environments are increasingly limiting their opportunities to enjoy this universal right.

Considering that we are a predominantly urban society, it is necessary to reflect on the way of life and development that we are adopting within cities. How is the current world embracing the new generations? It is a fact that there are various achievements and advances related to childhood and adolescence, such as increased

education and combating child labor exploitation. However, progress needs to continue.

We cannot overlook the effects of urbanization; such as distancing from nature, reduction of natural areas, environmental pollution, and the lack of safety and quality in public outdoor spaces, which leads adults, youth, and children to spend most of their time indoors and isolated from nature. This results in a heavy toll on the healthy development of children and adolescents, and consequently, on the health of the planet because the well-being of children and youth, and the health of the Earth, are undeniably interdependent.

Various factors are responsible for the lack of time spent in nature: family dynamics and urban planning, mobility, the use of electronics, consumerism, economic development, social inequality, insecurity, violence, lack of nature conservation, and education. It is a complex scenario, where these factors are interconnected and vary in intensity depending on the socioeconomic condition and specific reality of each individual. Thus, the impacts of confinement and the lack of contact with nature and healthy environments are more acute and present in densely populated cities and neighborhoods with high social vulnerability, where conditions for a healthy and fulfilling life are threatened, highlighting an important acknowledgement of environmental racism within this context. This concept (1) has been used to refer to the discrimination suffered by peripheral populations or populations composed of Black and Brown populations, linguistically isolated populations, populations with lower wealth and/or income levels, and other populations that suffer from discrimination, oppression, and marginalization, through environmental degradation. Furthermore, this term denounces that the distribution of environmental impacts is not equal among the population, with marginalized and historically invisible groups being the most affected by pollution and environmental degradation. This scenario has been worsening in recent years and is particularly critical when it comes to childhood and adolescence, with indicators that stand out in various sectors.

When it comes to **family dynamics**, meaning the diversity that characterizes families and childhoods, the pressures of daily life leave little time for interaction and leisure despite their multidimensionality, and are increasingly less directed towards outdoor activities. As a result, children miss valuable opportunities to run and play freely outdoors, and adolescents see their social interaction options restricted to indoor environments.

The current structural crisis in cities as a result of problems such as, deficient urban planning, rapid urban densification, and real estate speculation, combined with the supremacy of cars over pedestrians or cyclists, has led to the disappearance of both planned green spaces (such as squares, parks, gardens, and roadside trees) and non-designated ones (such as vacant lots, fields, large, open, and unoccupied spaces); as well as the disappearance of children and adolescents in cities and their free spaces. Recent data indicates significant differences regarding the presence and availability of parks and green spaces for the population of the world's largest cities. There is also the issue of care and maintenance: existing public squares and parks often suffer from neglect by governments and are frequently used for illicit purposes such as drug trafficking and vandalism, or serve as refuge for people currently experiencing homelessness. It is worth noting here that the World Health Organization (WHO) (2) has supported the establishment and maintenance of urban green spaces to promote health and well-being and has advocated for their contribution to healthy and sustainable cities.

Research corroborates what we have heard in practice: over the past 50 years, social and economic changes have been restricting people of all ages access to urban spaces. The street, once a place of socialization and leisure, has become a thoroughfare for vehicles and a place of danger, especially for children and adolescents (3). **Safety is now found in enclosed and protected spaces**, creating two prevalent scenarios: the curtailment of the freedom of children and adolescents who grow up in less-privileged and more vulnerable areas, spending much of their time confined to small, sunless spaces devoid of greenery; and, in the case of middle-class children and

adolescents, establishing a routine of commuting between one activity to an immediate other, before or after school, mostly in cars and without the chance to experience the street, neighborhood, or city. If children with typical development have had little access and time for outdoor life, this challenge disproportionately affects children with disabilities, including those with physical, sensory, intellectual and psychosocial disabilities.

In this context, a lack of time and limited interaction among children and young people of different ages in safe and well-maintained public spaces, we witness the strong and increasingly well-documented (4), impact of **digital intoxication**. Both children and adolescents, as well as their caregivers, spend a significant amount of their time immersed in the digital world, increasingly exposed to advertising and toxic, violent, or inappropriate content; which has significant effects on coexistence and physical and mental health, leading to a loss of contact with the real world and in-person relationships, a greater propensity for sedentary behavior, obesity and its consequences. Observing Brazil as a reference, data and indicators from research conducted by the Internet Steering Committee (CGI) and the Regional Center for Studies for the Development of the Information Society (Cetic.br), the TIC KIDS ONLINE-Brazil de 2024 (5) shows that 85% of children and adolescents between 9 and 17 years old are internet users, and of these, 97% access the internet via mobile phones, a device which is increasingly common to use among this age group. It is worth fortifying that the internet can be a risky and insecure environment for children and young people if its use is not mediated with care and attention.

When it comes to **education**, we face numerous challenges in providing a meaningful and valuable experience for students. One of them is the need to reflect on and re-qualify practices, organization, routines and school time, recognizing play and learning time with - and in - nature as one of the central elements of an education linked to life itself. Playing in the sand, climbing trees, building huts, and meeting friends outdoors are important experiences that allow the establishment of positive connections

with natural life and others. Therefore, if these moments do not take place in school or in other educational environments, including squares and parks around schools, they may not happen in the lives of many children and adolescents who now spend most of their time in educational institutions. Action must be taken to prevent the impoverishment of the multitude of experiences that they can (and should) experience, acting from the perspective of **integral education (6)**, which seeks to ensure the development of children and young people in all their dimensions - intellectual, physical, emotional, social, and cultural. In this sense, the school must be constituted as a collective project, shared by children, young people, families, educators, managers, and local communities.

Another highly relevant element that influences all the issues discussed so far must be added to this debate: the **triple planetary crisis (7)** facing **humanity at this moment**, which involves the **climate emergency, biodiversity loss, and environmental pollution** (of soils, waters, and oceans). The three dimensions of this crisis must be addressed in an integrated and systematic manner, since each one further accelerates the other two. The triple crisis amplifies conflicts, tensions, and inequalities, increasingly placing people in vulnerable situations. Even more important, children represent one third of the global population, and although they are the least responsible for these crises, they will bear the brunt of their impact. Because they are in a more sensitive phase of development, where their physiological defense systems are still immature, young children are the most directly affected. Like environmental degradation and pollution, climate change undermines the rights of children and adolescents. From natural disasters to water and food shortages, all these elements compromise children's development and jeopardize their basic rights.

The effects of this triple crisis further impact children and adolescents living in situations of vulnerability and neglect, already deprived of other rights, which can lead to the rupture of their protective bonds and the violation of their rights, especially in the case of Black, tribal, indigenous, ethnic minority children, belonging to traditional peoples and communities; migrants and/or refugees;



children and adolescents with disabilities; as well as girls in some cultures. Thus, the climate and environmental issue is also a matter of **social justice**. The inclusion of children and adolescents at the center of discussions gained momentum in 2021 with the publication of the first **Climate Risk Index for Children**, which ranked countries based on children's exposure to climate and environmental risks. One billion children - nearly half of the global population of 2.2 billion children - live in one of the 33 countries classified as having extremely high risk.

Although the impacts of climate events on physical health are more visible, the **psychological and mental health** impacts can be equally devastating. Stress after experiencing an environmental disaster or uncertainties related to the future, which generate psychological and emotional pressures, have led health experts to include the concept of "climate anxiety" or "eco-anxiety" in the lexicon of the environmental crisis. Furthermore, the majority of public policies and national plans related to climate and the environment mention little or completely ignore the specific vulnerabilities of children and adolescents.

It must be additionally considered that the triple planetary crisis is also a crisis of the distancing of children (and adults) from nature; it reflects the loss of contact and connection of people with natural environments. Traditional and indigenous peoples and communities have repeatedly pointed out that these two themes are intertwined; that is, the planetary crisis is a reflection of the distancing and disconnection of people from nature, while this detachment contributes to further exacerbating global environmental crises. As Brazilian indigenous philosopher and thinker Ailton Krenak (8) states, in the indigenous worldview, a river and other elements of nature are considered relatives, ancestors. And this bond of 'kinship' means that the care given to the river is the same care given to a beloved family member. Many studies (9, 10) have shown that the greater people's connection with nature, the greater society's engagement with environmental and climate issues will be. Initiatives aimed at re-establishing connections between children and young people with nature should provide experiences

associated with feelings of connection such as comfort, confidence, pleasure, exploration, challenge, achievement, freedom to pursue personal interests, overcoming fears outdoors, empathy, and responsibility and care for others living beings. This is an important path to develop a sense of agency in children and young people, and thus contribute to a constructive and healthy response to these environmental changes, and above all, to nurture and have hope for the future.

Changing the reality of this disconnect from nature is an endeavour that must bring together governments, companies, civil society, the health, environment and education sectors, as well as the media and individuals, positioning children and adolescents as an absolute priority on the climate and environmental agenda. 🌿

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# 03. Rights-based approach



The child's right to access, connect with nature, and enjoy a healthy environment involves an expanded approach to nature protection and conservation based on rights. Several legal frameworks guarantee the right to nature, themes that are complementary and intrinsically linked to childhood and adolescence.

At the international level, there are numerous treaties [\(11\)](#) and conventions that address the importance of ensuring children's right

to access nature, establishing legal bases for tackling the triple planetary crisis. Among them is the United Nations Convention on the Rights of the Child (UNCRC), which provides for the guarantee of the right to leisure and education that develops respect for the environment. Article 31 of the Convention specifically aims to ensure the right to play: “States Parties recognize the right of the child to rest and leisure, to engage in play and recreational activities, and to freely participate in cultural and artistic life”. Article 29 details that education should “instill in the child respect for the environment”.

In 2013, General Comment #17 for Article 31 was approved, stemming from the concern of the United Nations Committee on the Rights of the Child (UNCRC) regarding the little recognition given by governments around the world to this right. It is important to highlight that this Comment also addresses the right to play in nature, emphasizing its importance for child development in its analysis of the challenges to be considered for the fulfillment of rights under Article 31: “Lack of access to nature: Children understand, appreciate, and care for the natural world through exposure to it, through self-directed play and exploration with adults who communicate its wonder and significance. Memories of childhood play and leisure in nature reinforce the resources with which one deals with stress, inspire a sense of spiritual awe, and encourage land management. Playing in natural environments also contributes to agility, balance, creativity, social cooperation, and concentration. Connection with nature through gardening, harvesting, traditional festivals, and time for peaceful contemplation represents an important dimension of the arts and heritage of many cultures. In an increasingly urbanized and privatized world, children’s access to parks, gardens, forests, beaches, and other natural areas is being eroded. Children in low-income urban areas are more likely to lack adequate access to green spaces”.

In 2018, the UN elaborated a set of Guiding Principles on Human Rights and the Environment (12) that addresses the basic obligations of states and establishes that human life and health can only be ensured within certain minimum ecological standards. In 2021, the council recognized through Resolution No. A/HRC/48/L.27, in an unprecedented manner, that a clean, healthy, and sustainable environment is a fundamental human right (13), highlighting that the

damages caused by the climate crisis, associated with biodiversity loss and pollution, constitute one of the most urgent and serious threats to the safety of present and future generations. Therefore, it is a fundamental structuring right, directly related to all other fundamental rights, such as the right to life itself.

Also in 2021, UNICEF (14) highlighted that the **climate crisis is a crisis of children's rights**. Many children and adolescents already face a deadly combination of exposure to multiple climate and environmental shocks with high vulnerability, due to inadequate essential services such as water and sanitation, health, and education.

In addition to that, General Comment 26 (15), approved in 2023, underscores the urgent need to address the adverse effects of environmental degradation, with a special focus on climate change, and specifies that States are responsible for protecting the rights of children and adolescents against immediate harms, as well as foreseeable violations of their rights in the future, due to their omission or action. The Comment reinforces that special attention should be given to the disproportionate harms faced by boys and girls in disadvantaged situations and suggests that the views of children and adolescents should be considered in environmental decision-making, emphasizing that they should be empowered to take action, advocate, and protect themselves from environmental harms.

Another approach that could inspire similar initiatives is the **Children's Outdoor Bill of Rights**. This is usually a list of specific outdoor experiences that every child deserves. It can be approved as a resolution, proclamation or be implemented as a program. Fifteen states and six North American cities have approved their declarations. Taking the city of San Francisco as a reference, the declaration represents a commitment to all children who grow up there, proclaiming that it is every child's right to: feel welcome, safe and secure outdoors; explore all the city's wild places, pick and eat a fruit or vegetable, plant a seed and watch it grow, visit and care for a local park, climb a tree, as well as other activities that can contribute to broadening the links between children and the natural world, strengthening the bonds between both. 🤝

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# 04. Children and nature: a relationship of mutual benefits



An increased contact of pregnant women with green areas is associated with higher gestational weight of the baby, an important indicator for the psychophysiological development of the infant (16).

In line with international legal frameworks, there is currently a broad body of research linking the lack of opportunities for play and learning with - and in - nature to health problems in childhood and adolescence such as obesity/sedentary (17), hyperactivity

(18), low motor skills (19), lack of balance, agility, and physical ability, and even myopia (20). Another aspect to consider is that the leading cause of death in adults corresponds to cardiovascular diseases (21), and that metabolic syndrome, which combines risk factors such as obesity, elevated blood glucose, cholesterol, and blood pressure, has become a pandemic that is advancing in early stages of life (22). Although caused by various factors, we know that metabolic syndrome is directly linked to the lifestyle of children and adolescents, and therefore, deprivation of movement and higher levels of stress can severely impact the future of this and future generations. These are some of the most evident health problems caused by the confinement scenario of childhood and adolescence, but several less recognized behavioral consequences, such as increased depressive symptoms, anxiety, and sleep disorders, are also part of this context (23).

Journalist Richard Louv, author of the book *Last Child in the Woods* (24), coined the term **Nature Deficit Disorder** to describe lack of time in nature among childhood and adolescence. It is not a medical term, but it is an effective way to draw attention to an emerging issue whose symptoms, including mental and behavioral disorders, can be observed by many pediatricians in their clinics.

Simultaneously, research has emerged (25) indicating that exposure to nature during childhood and adolescence improves the management of chronic diseases such as diabetes, asthma, obesity, among others, and reduces the risk of alcohol and drug dependence, promotes neuropsychomotor development, and reduces behavioral problems, while also providing mental well-being, balancing vitamin D levels, and decreasing the number of visits to the doctor.

Contact with nature also helps foster creativity, initiative, self-confidence, decision-making ability, and problem-solving skills, which can in turn contribute to the development of multiple languages and improvement of psychomotor coordination. Not to mention the benefits more closely related to the field of ethics and sensitivity, such as enchantment, empathy, humility, and a sense of belonging (26).

Although few studies have focused on children with disabilities or different capacities, available knowledge (27) indicates that nature-

based interventions have been effective in promoting the physical, emotional, social, and cognitive development of children with disabilities in general. In the case of autism, for example, studies (28) have shown that the natural environment provides sensory experiences that offer a welcome escape from the more intrusive and overly stimulating indoor environment for autistic children. Documented benefits of engagement with nature for children with this condition include improved communication, more positive social interactions, increased physical activity, gains in cognitive development, enhanced ability to socially interact, and greater use of imagination in play.

In September 2018, following pressure to include more cognitive-based educational activities and the consequent reduction of time for play (recess) in preschools in the United States, the American Academy of Pediatrics published **guidelines underlining the role of pediatricians in emphasizing the importance of a balanced curriculum that includes play in promoting healthy child development** (29).

The literature (29) demonstrates that the act of **playing** during childhood and adolescence is associated with optimal brain development, as experiences during this period, when windows of opportunity are open, are sent and translated into essential synaptic connections for proper brain maturation and satisfactory neuropsychomotor development. As a result, children and adolescents will see improvements in executive functions, language, mathematical skills, sensory integration, ability to think creatively, and multitasking, contributing to the formation of healthy adults with fully developed brain potential.

Children aged 7 to 9 who engage in physically active play - and nature is an optimal space for this - show better cognitive ability and focus, as well as a decrease in sleep disorders, for example. Playing with traditional toys (versus electronic, especially non-interactive ones) is associated with a qualitative and quantitative increase in language acquisition. On the other hand, there are studies associating lack of play with increased prevalence of toxic stress and behavioral disorders (30), such as attention deficit hyperactivity disorder (ADHD) and depression.



For children with disabilities, one study (31) showed that children who regularly visit nature-rich outdoor environments at school improve their levels of self-esteem, concentration, and participation in social settings. In the case of children with disabilities experiencing nature can also be considered a form of support or an additional care resource, with benefits that are beginning to be elucidated.

To clarify in this context, **nature** is understood as what can be found in a wide variety of environments, both built and unbuilt, especially that outdoors, composed of natural elements such as rocks, soil, water, sea, rivers, plants, trees, insects, birds, and all forms of life and space (sky, stars, sun, moon, horizons). In addition, it includes the “nearby nature,” which can be accessed every day at home, school, or in the neighborhood: courtyards, streets, flower beds, gardens, squares and parks, beaches and lagoons, urban, school, or home gardens. It also includes remote and less human-interfered protected areas, which provide experiences as abundant as the nature of these places.

We understand that children and adolescents have the right to live in healthy environments and, for this reason, the concept of nature adopted in this document does not include areas that are degraded, polluted or that offer risks to their health or safety. It is important to emphasize that risk areas should always contain warning and safety signs for the social protection of children and adolescents.

Nature brings numerous benefits to children’s health, learning, and development; on the other hand, children’s connection with nature is essential for nature itself. It is through experience, education, and connection that children and young people can engage with environmental and climate issues, develop green citizenship, become agents of change for the environment, and take a leading role in the socio-environmental agenda. This is the path to understanding and addressing the environmental and climate challenges of our time, to build sustainable, resilient societies with the capacity for adaptation and innovation. 🌿

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# 05. Considerations for pediatricians



## Pediatric office

- \* **Keep books, magazines, and movies about nature in the waiting room**, especially those that provide relevant answers to the questions frequently asked by children and adolescents about how the natural world works. Avoid books and movies that anthropomorphize living beings or that bring content about the

threats and damage that humanity has caused to the natural world, based on fear and guilt. Books and movies can inspire love and curiosity for life outdoors. For example, field guides about the birds in your region can inspire children, adolescents, and adults to remember the birds they have seen and make plans for an outdoor outing.

- \* **Keep some natural elements in the waiting room**, such as stones and pots of aromatic plants and spices, avoiding toxic or allergenic species and using enameled pots. Give preference to wooden toys with a distinctive weight, texture, durability, traces of time and aroma, over plastic toys. If necessary, the next best option would be toys made with medical grade silicone.

### Conversations with families

- \* Advise and guide families at prenatal and childcare appointments about the **importance of contact with nature** for the baby and its mother (who will also benefit physically and mentally from walks in the fresh air).
- \* Evaluate/advise/guide on **the benefits that contact with nature brings to children and adolescents during the interview or consultation** (even medical emergencies) and correlate them with the symptoms presented by the patients (toxic stress, sedentary lifestyle, allergies, sleep and eating disorders and lack of motor coordination). When assessing growth parameters, show the curves and talk to the guardians about the fundamental influence of outdoor physical movement on children's development, specifically on the production of growth hormones.
- \* **Give advice and guidance on the importance of play** in the child's routine. Emphasize that sports activities are beneficial, but that free play has special qualities that sports don't have, and that natural spaces are fundamentally optimal places for this activity. Within this context, ask how much time the child has available every day to play freely in the open air and highlight the role of the school playground in this scenario. Ask about the child's safe access to these spaces. Can they get to these spaces

safely, and are they safe once there? Do they feel welcome? Inclusive? Does the space have sufficient shade? Explain the importance of playtime and emphasize that children need to have plenty of time to play freely in the open during their time at school, so that they can concentrate on their academic activities.

- \* **Give advice and guidance on the importance of meetings and peer relationships in adolescents' routines.** Emphasize that sports activities are very important, but that free and undirected encounters have special qualities that sports don't have, and that natural spaces are outstanding places for this activity. In this context, ask how much time the teenager has available every day for social gatherings in the open air and highlight the role of the school playground in this scenario. Ask about the routines and spaces at the school the teenager attends. Educate them about the importance of unscheduled time and emphasize that teenagers need to have time for social interaction with their peers during their time at school, so that they can concentrate on their academic activities.
- \* **Encourage adolescents to plan get-togethers with friends in parks and open areas.** Educate them about safety issues in these places and encourage guardians to find safe and pleasant outdoor spaces (clubs, squares, city parks, botanical gardens, etc.).
- \* **Evaluate sleep habits, nutrition, physical activities, behaviors, school performance, use of digital devices and family dynamics,** highlighting the importance of outdoor experiences for the healthy development and well-being of the child and adolescent. Inquire about the family's favorite outdoor activities and discuss others that may not have been considered, such as birdwatching, gardening, and picnics. Evaluate with parents what are **the main barriers limiting access for everyone to engage in outdoor leisure activities** (lack of time, lack of transportation, unawareness of where to go and what to do, financial difficulties). Plan with children, adolescents, and their families a "nature diet" plan based on the pyramid presented on the next page, according to the age group of each patient, in

order to ensure that they have access to nature on a daily and frequent basis:

- \* Play in the nearest playground for at least one hour per day;
- \* Take a walk or hike in a garden or along the beachfront or lakefront;
- \* Have a picnic in a different park once a month;
- \* Watch the sunset and the beginning of the night sky, and look for stars;
- \* Spend the weekend or vacation in a natural setting or where children and adolescents can move around with autonomy and freedom, with supervision and social protection rules.



**Together we can bring childhood back outside, one day at a time.**

- \* **Highlight the importance of children and adolescents having contact with domestic animals as well as with plants in pots or garden beds at home**, showing that children and adolescents who live with nature and with domestic animals are often healthier, especially from an immunological standpoint. Show that even in small spaces like apartments, it's possible to cultivate potted plants and even a small garden, and that children and adolescents benefit greatly from this practice. Caution about the choice of plants and pots, avoiding toxic or allergenic species and preferring glazed pots. Consider exceptional situations of specific allergy to animals and plants.
- \* Encourage parents of children with and without disabilities to provide nature experiences for their children, clarifying and reinforcing the importance of these activities for their physical and mental well-being, as well as for their learning. **Contact with nature can be an effective approach to promote self-esteem, concentration, and participation in social environments for these children and their families.** It can also help alleviate symptoms of anxiety and depression. For adolescents, additional benefits include a sense of greater independence and autonomy, as well as decision-making skills.
- \* Include recommended protocols and routines that allow for both prevention and diagnosis and treatment of physical and emotional health damages resulting from the confined lifestyle in which children and young people spend many hours in indoor environments: obesity, overweight, sedentary behavior, vitamin D deficiency, nutritional deficiencies, eating disorders, hyperactivity, attention deficit, emotional imbalance, low motor skills - lack of balance, agility, and physical ability - and myopia, as demonstrated by various studies in the scientific literature.
- \* Consider and evaluate more closely children and adolescents with complaints related to academic and behavioral performance, such as those who present symptoms of hyperactivity and attention deficit. Advise on **the importance of ensuring that these children and adolescents have time and space to move,**

**expend energy, and engage in play that sparks their interest and concentration.** Assess with the family the routines and physical space of the school that the child or adolescent attends and recommend more opportunities for unstructured play, gatherings, and outdoor outings, considering the relationship between time in nature and reduction of ADHD symptoms (32).

- \* Update your knowledge regarding the scientific evidence on the damages caused by a “nature deficit” to the physical, mental, and psychosocial development of children and adolescents. Understand the diagnostic possibilities related to this age group and prescribe the main prevention measures, which are also topics of public and collective health considering the enormous benefits of contact with nature in preventing various diseases.
- \* Engage in dialogue with the family during the consultation about **changes in habits and lifestyles that may be harmful,** as they serve as reference models for children and adolescents. These changes may include the reduction of sedentary behavior, choosing leisure activities in enclosed spaces linked to consumerism (such as shopping centers), and excessive use of electronic devices (smartphones, tablets, computers, and video games) instead of outdoor activities like walking or cycling, picnics, or gardening. Parents and caregivers serve as role models for their children, and family values and experiences tend to be perpetuated in subsequent generations.
- \* Engage in dialogue with the family about how contact with nature through the process of planting, harvesting, and preparing food can inspire healthy eating habits. This may include being more willing to try different vegetables more frequently or, consuming more fruits and vegetables.
- \* Find a balance when discussing accident prevention by addressing the difference between **beneficial risks** (those with low consequences and high developmental gains) and common childhood injury hazards (such as traffic accidents, drowning, and suffocation). Put into perspective the long-term risks that overprotected children and adolescents face due to a sedentary

lifestyle. Emphasize safety rules and social protection for outdoor areas (such as wearing hats for sun protection and using sunscreen and mosquito repellent). Discuss the value of shade structures or trees in outdoor spaces.

- \* Collaborate with the media to emphasize the importance of children and adolescents having contact with natural and open environments in any interview or topic where the pediatrician is the professional being interviewed. Always alert and clarify about the health problems related to the “nature deficit” during childhood and adolescence, as well as highlight the benefits of a “nature-rich diet” during this stage of life, suggesting the use of available public green spaces in their city.
- \* Participate in lectures at schools or in campaigns promoting healthy lifestyles, emphasizing the importance of daily and frequent contact with nature as a prerequisite for the health rights of all children and adolescents, and as a measure to address the climate emergency.
- \* Collaborate in the development of public health policies that include access to nature as a right for all children and adolescents, as well as measures to address climate change and its impact on the health and well-being of children and adolescents.
- \* Share with children, adolescents, and their families your own stories of connection with nature and experiences in the natural environment, especially those from your childhood, to help build positive narratives about this relationship.
- \* Talk to families about the fact that climate change represents one of the greatest public health concerns in the 21st century and is considered one of the main (avoidable) risk factors for health, affecting everyone, although the risks may be potentially greater for children. Alert them to the fact that climate change, biodiversity loss, and ecosystem degradation are obstacles to realizing children’s right to health, so individual and collective action is essential to reverse this situation and protect children’s health.



- \* Alert families to the fact that rising temperatures increase the risk of vector-borne diseases and zoonoses, as well as concentrations of atmospheric pollutants that harm brain and lung development and exacerbate respiratory problems, and how to balance these risks with the importance of getting outdoors in nature. Specific effects include reductions in microbial diversity, which is critical for children's immune system development, and increased prevalence of autoimmune diseases, with long-term effects (33), as well as the risk of emerging pandemics, allergies, respiratory diseases, and increased hospitalizations. From a mental health perspective, it increases the risk of eco-anxiety.
- \* Emphasize that direct and positive experiences in nature are a powerful antidote to anxiety related to climate change. Advise families that experiences such as nature walks, river or sea baths, and other activities can enhance connection, develop a sense of belonging, increase confidence, and awaken feelings of hope in children.

The relationship between children and adolescents with nature in their daily lives and the opportunities they have to play and interact freely outdoors are relevant aspects for the practice of comprehensive pediatrics, whose goal is to care for the health and full development of children and adolescents in our time. Pediatricians should seek to broaden their perspective and care beyond just treating and preventing diseases, promoting physical, emotional, mental, social, and spiritual well-being of the child, the adolescent, and the family. In this sense, they should unite around actions that contribute to minimizing the impacts of climate change on health, offering guidance to families and society on preventive measures and health protection on this topic. Therefore, by seeking to see the child and the adolescent in their broader context and thinking about how to contribute to their health, the pediatrician brings to the forefront reflections on family, city, and neighborhood where they live, social group, education, consumption and media, environment, culture, and the planet. \*

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# 06. Guidelines for families



- \* Speak with the pediatrician, adolescent medicine specialist, or another trusted professional about how to help/guide them to provide an active outdoor life for your child. Ask questions, request explanations regarding the benefits of nature contact and the involved risks (sunstroke, skin care, hydration, accident prevention). Prioritize the topic, and if deemed necessary, ask for recommendations for texts, books, and videos.

- \* Two major barriers that prevent children and adolescents from having opportunities to play and socialize outdoors are time and access. Don't let your child's schedule be filled with studies and extracurricular activities. Set aside some time - at least an hour a day - for them to play outside freely and independently. Regarding access, remember that you don't need to seek distant or perfect places - nearby nature, the accessible one, is enough: a stroll down the street, the building's courtyard, the nearest park. Whenever possible, include other children and adolescents in these moments, as it will greatly enrich the experience.
- \* Perform the child's and adolescent's routine journeys (home - school - home, extracurricular activities, and others) and family trips on foot whenever possible and have a preference for public transportation. **Walking or using public transportation** brings numerous benefits such as physical activity, understanding and connection with nearby environments, a sense of belonging, and emotional bonds. More information is available in the infographic about using bicycles for a healthy childhood (Available from: <http://bit.ly/2P7GMWH>).
- \* If the nearest square or park to your home is abandoned, poorly maintained, and unattractive for use, get involved in its revitalization with the help of the neighborhood or the municipality. Find out if there are other families interested in promoting the cleaning and renewal of this public area. There are many movements and collectives that show **it's possible to transform and revitalize public spaces**, which become the meeting point for the entire community around them.
- \* Set an example, go outside. Reserve **time on weekends** for outdoor activities with your child. It could be a simple walk in the park, at the square, playing ball, or a bike ride. Make your weekend, and your family's, active and healthy. Your example will be crucial for your children to establish a lasting relationship with nature. During these outings, always remember to respect the pace of the children, so that their interaction with the natural world is appropriate for their age: let them lead the way, showing

what they want to do and observe. The quantity of activities performed matters less than the quality of experiences.

- \* Put together **a small kit to take on family outings** with the intention of helping the child explore even more what has sparked their interest. Suggestions: cardboard for sliding down slopes, magnifying glasses to investigate small animals or plants, containers to store findings, ball and *frisbee*, ropes and fabrics to build a hut. A picnic kit with non-disposable utensils is also a great idea.
- \* **Invite other families or children to spend time outdoors engaging in leisure activities.** The idea is to find company for walking, playing, cycling, caring for parks and squares, bird watching, having a picnic, or even organizing temporary leisure streets in your neighborhood. The website of the Children and Nature program, by the Alana Institute (<https://www.criancaenatureza.org.br>), presents a toolkit on how to create your own Family Nature Group. In the United States, the website of the Children & Nature Network offers many resources (<https://www.childrenandnature.org>).
- \* **Bring flora and fauna into your family's life.** Have pets and plants at home. Cultivate a garden, a vegetable patch, or pots, and allow your child to have their own pots and plants (preferably non-toxic or allergenic plants and use glazed pots). If it's not possible to have a pet, adopt a cat or a dog from the neighborhood and take them for walks with the child. Take into account exceptional situations of specific animal allergies.
- \* **Tell your children stories about your childhood,** the games that were part of it, and the role of natural areas and open spaces during that time of your life. Remember how these experiences were important and formative for you and help your child to live similar experiences.
- \* **Offer books and magazines about nature to your child,** especially those that contain relevant answers to their inquiries about how the natural world works. Avoid books that anthropomorphize living beings (depicted with human characteristics

or as if they were humans) or content that addresses the threats and damages that humanity has caused to the natural world, avoiding a discourse based on fear and guilt. Books can inspire love and curiosity for life outdoors. For example: field guides about birds and plants, books about adventures in nature, and about its inspiring beauty.

- \* **Encourage your child to interact with the natural environment in all weather conditions.** If it's raining, go outside and show the children the joy of jumping in puddles, building dams on the sidewalk, and observing leaf boats. On very sunny days, protect them with hats, lightweight clothes that block the sun, use sunscreen safely, and allow them to play outdoors, preferably in the shade. When dressing your child for school or during family outings, choose clothes that don't restrict their movement, that are comfortable for outdoor play, and can get dirty and damaged. In cold or rainy weather, dress the child in layers, preferably using synthetic clothes that dry more quickly. Plastic boots and a raincoat allow your child to go outside even when it's raining.
- \* Recognize that children and adolescents are capable and competent. **Learn to assess your child's abilities to take risks during unstructured play in outdoor environments** and help them understand the consequences of what they are not yet capable of doing. At the same time, gradually encourage them to go beyond what they already know, allowing them to take risks they feel comfortable with, thus developing their judgment and self-regulation abilities.
- \* **During family vacations, prioritize visits to natural areas** such as national and state parks. Remember that vacations can be great opportunities for children and adolescents living in urban centers to experience preserved nature-free from human interference (trails, waterfalls, caves). Spending a few days at the beach annually or camping for one or two nights are also highly enriching experiences for children and adolescents.
- \* **Plan outdoor birthday parties.** Squares and parks are great options for children's parties, in addition to being low-cost. Additionally, they offer opportunities for much more enjoyable

and healthy games for all guests: adults, teenagers, and children. A picnic in the park with traditional childhood games can be a great option.

- \* **Outdoor life is one of the best antidotes against digital intoxication** threatening children and adolescents. Seek balanced use of digital devices in your personal life and in your child's daily routine and encourage them to play outdoors as much as possible. The habit of playing without screens will help them find a balance between healthy technology use and connection with the natural world.
- \* Outdoor life is also one of the best antidotes for **climate anxiety**. In the era of climate change, children have been experiencing feelings of distress and vulnerability. Ensure that they have time outdoors to develop a strong connection with nature and have positive experiences.
- \* **Encourage your teenage child to plan gatherings with friends in parks and open areas.** Guide them on safety issues in these locations and help them find outdoor spaces that are safe and enjoyable. Talk to other families about providing social interaction opportunities for teenagers outside of enclosed and private spaces like shopping centers. **Discuss with your child's school about the opportunities offered to students to play and learn in nature.** How much time is there for recess? Where can children play and teenagers socialize during this time? What is the space like? Are there natural elements? Do children and teenagers have the freedom to interact with them? How do teachers use spaces outside the classrooms for educational activities? Show that you value the importance of interaction between children and teenagers and the natural environment at school and find out how this occurs and what can be done to improve it.
- \* Harness children's interest in the process of planting, growing, harvesting, and preparing food as a strategy to promote **healthy eating habits** for the whole family, increasing the consumption of vegetables, fruits, and vegetables. A small home garden is an excellent tool, if everyone dedicates themselves to its maintenance and care.

- \* **Use nature as a partner to strengthen family bonds.** Is there a better way to strengthen the bond between mothers, fathers, and children than playing outdoors, leaving aside electronic devices and consumption? When they think about their childhood, young people often mention outdoor adventures as their best memories - even if they complained about those outings at the time.
- \* **Talk to your sons and daughters about inclusion,** diversity, and respect for children with disabilities. Adults need to help children include others in their play, fostering an attitude of acceptance and respect.
- \* Talk to your children about the climate emergency. For many families, **the impacts of the climate crisis** are hitting close to home in the **form of floods, droughts, or wildfires.** Helping children deal with the issue and contribute to the **solution requires overcoming fear** and discussing the subject **transparently.** Be prepared to talk if the child brings up the topic at home or initiate a conversation in a safe environment so that they feel comfortable expressing their concerns. A good chat can be very comforting and bring about a sense of security, hope, and a desire to act. Each child and each age group require a different approach, so consider what to say based on their age. Keep in mind that there are resources (34) available for all of them, including books, movies, and websites.
- \* When dealing with the climate crisis, reinforce to children that we are not alone in this fight, that many people and organizations are working to make the necessary changes. Emphasize that the climate crisis also offers positive opportunities for individual and collective change, and that even small gestures towards preserving the natural world contribute to improving the quality of life for everyone.
- \* Listen to children and teenagers with respect and empathy for their ideas and suggestions, and encourage their agency, showing them that they can contribute to addressing the challenges ahead of us. 🌿

# 07. Guidelines for educators and schools



## Outdoor playing and learning at school:

- \* Developing strategies aimed at increasing opportunities for outdoor play and learning is crucial. It is recommended to evaluate the educational process to review spaces, practices, organization, routines, and school time, recognizing the value of playing and learning with, and in, nature as one of the central elements of an education linked with life itself.



- \* For the child's time, it is also recommended to **reconfigure school routines** to allow children in early childhood education and elementary school ample opportunities to be outdoors, preferably in natural environments in contact with plants, soil, and water. Therefore, **it is essential to strike a balance between structured activities and free play (recess)**. In this regard, the role of the educator should be less controlling and more observational, actively watching and being present for the spontaneous gestures and desires of children, who need time to grasp the world through play, to connect with themselves through introspection, and to relate to others through collective experience.
- \* It is important to note that children's contact with nature in the school environment should not be limited to activities related to environmental education. While these activities are highly relevant, they are often associated with the analysis and study of issues related to sustainability and nature conservation and are predominantly cognitive. Before being introduced to environmental problems and climate issues, children need to experience nature in its fullness and beauty, to become intimate with it, and to form emotional connections. This occurs through direct, unstructured experiences anchored in play. The emotional bond between children and nature will help them adopt attitudes that contribute to a sustainable society and respect for all forms of life.

### Preparing spaces:

- \* In terms of spaces, it is suggested that the entire school be designed and planned with the aim of facilitating the school community's access to the outdoors and nature, while ensuring that this design process uses universal design and considers the accessibility requirements of all children with disabilities. Within a conception that advocates for schoolyards to be considered elements of the city's open space system, what would happen if schools replaced concrete with soil, sand, and trees? We would have a network of open spaces within the city becoming more natural, greener, positively impacting the entire community.

- \* It is recommended to broaden the conception that learning only takes place within the school, especially in classrooms, and to value all outdoor spaces as well as extramural spaces. Seek successful references from naturalized parks, educational environments, cities, and learning communities that prioritize nature as a pillar of their pedagogical projects. Field trips, field studies, excursions, and outings are also excellent strategies and should be as frequent as possible.
- \* Listening to what children and adolescents have to say about school spaces and seeking to incorporate their desires and perceptions into them, thus making them better for them and for the other members of the school community, is crucial. Through this path, the schoolyards and the entire school can become places of joy, fostering discovery and experimentation, and providing the construction of knowledge and human development.
- \* Regarding the organization of spaces, research indicates that planning the schoolyard and the intentional incorporation of various elements can not only increase the possibilities of play but also enhance the quality of curricular teaching – mathematics, sciences, writing – and the motivation of students and teachers to engage in the teaching and learning process. There is a tendency to believe that size is the main factor for the playground to fulfill this role, but in reality, successful experiences and research indicate that elements such as trees, shade, loose branches, seeds, flowers, soil, water, ropes, and how they are organized have a significant influence on activities and the desire to stay in the playground, both for students and educators. Each school should adapt, organize, and use its space according to its terrain, financial resources, and, most importantly, its pedagogical approach. Often, schools also rely on the participation of families in this process, through the donation of materials and collective efforts to organize spaces and build toys and other structures.

### Sensory experiences:

- \* The richness of sensory experiences is a desirable characteristic in a school environment, and **the quality and sensory diversity of materials** should be considered when selecting elements. In this regard, plastic toys, EVA foam (a mixture of ethylene, vinyl, and acetate), and low-quality disposable materials should be avoided. Whenever possible, offer children wooden toys, kitchen utensils made of porcelain, wood, or metal, and plenty of natural elements such as stones, leaves, branches, and shells.

### Taking risk:

- \* Opportunities to take risks are an essential component of school environments aimed at the holistic development of children. Adults and institutions have a responsibility to use common sense when providing and allowing children and young people to engage in activities that involve taking beneficial risks, such as climbing trees and descending slopes and ramps.

### Food consumption:

- \* Food consumption at school can also be used to promote the connection between children and nature. A careful process of planting, cultivating, harvesting, and preparing food involving the entire school community can instill lasting knowledge and **healthy eating habits**, such as increased consumption of vegetables, fruits, and legumes.

### Awareness and capacity building:

- \* Develop an awareness that **the benefits are mutual: just as children and adolescents need nature, nature also needs children and youth**. This clarity is important to support, conceive, and prioritize children's activities in school.
- \* It is essential to plan and implement training processes that aim to enhance educators' understanding of school spaces

and the potential of educational experiences that take place in playgrounds and other natural educational territories. **To free children and young people from being confined indoors, educators must free themselves as well!** Therefore, it is important for educators to also cultivate a joy for being in nature, so they can then provide that experience for their students.

- \* Involving families in the process of breaking away from indoor confinement is crucial because, although they may sometimes be a significant barrier, they can also become important supporters. Schools and educators play a fundamental role in raising awareness about this issue among families and encouraging their involvement.


### Tackling Climate Change or Climate Education:

- \* It is essential to educate for climate resilience. Knowledge, skills, values, and action on climate change need to be integrated into all areas and levels of learning. Educational policies and curricula in elementary and secondary education often show low levels of integration of topics related to the environment, climate change, and biodiversity (35). One study (36) of educational sector plans and curriculum structures in countries in Latin America and the Caribbean showed that only 19% of countries mention elements related to climate change in their curricula. This indicates that **these concepts are not being adequately addressed in the classroom**, including the connection between climate change and human health. Often when climate change is brought into the classroom, the focus is on environmental impacts and climate change mitigation. More understanding of climate change's impacts to human health is needed, **thus offering the opportunity to develop skills to address climate change** (37).
- \* **Formal or informal training processes** may be necessary to expand educators' repertoire and knowledge about the importance of nature for well-being and learning, as well as about climate issues, to promote changes in the school structure and teaching-learning process. This can be crucial for educators

and caregivers in schools to engage and be prepared to make this shift in perspective. Courses, seminars, events, lectures, videos, books, and other materials can help in this regard. Professional development opportunities, coaching and mentoring are all helpful.

- \* Expanding schools' resilience to extreme events resulting from climate change requires the development of adaptation measures in school infrastructure and educational service operation, following the standards of best sustainable and resilient practices. This includes avoiding soil sealing, adopting measures to improve the energy and water efficiency of schools, increasing thermal comfort, providing adequate ventilation and air filtration, rainwater harvesting and storage, and accessibility for people with disabilities.

### **Nature-Based Schools:**

- \* Know and adopt the concept of **Nature-Based Schools (38)**, which proposes a change in pedagogical practices, school spaces, and their surroundings, including more nature in all these dimensions. Including more nature in schools helps to adapt cities to the climate crisis and, at the same time, promotes health and learning. Greener schools, with innovative and sustainable solutions, built in a participatory manner, contribute to the environmental and climate literacy of their community. 

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# 08. Guidelines for urbanists and urban planners



- \* Parks in residential areas are the primary recreational spaces for children of all abilities and ages. These areas serve to strengthen social bonds within a neighborhood and create more cohesive communities.
- \* Plan all public spaces based on the seven principles of **Universal Design (39)**, a system of strategies that can be applied to

products, environments, and services, to make indoor and outdoor spaces accessible to people of all abilities. The principles advocate for:

- \* **Equitable use**, for projects and environments that can be used by people with different abilities and capacities; the
- \* **Flexibility in use**, accommodating a wide range of individual preferences and abilities.
- \* **Simple and intuitive use**, easy to understand regardless of the user's experience, knowledge, skills, or level of concentration.
- \* **Perceptible information**, meaning the design should communicate information effectively, regardless of environmental conditions or user abilities.
- \* **Error tolerance**, minimizing adverse consequences of accidental or unintended actions.
- \* **Low physical effort**, which can be used efficiently and comfortably with minimal fatigue.
- \* **Dimensioning and space for approach and use**, so that the environment has appropriate dimensions and space for approach, reach, manipulation, and use, regardless of body size, posture, or user mobility. These principles aim to make spaces accessible to all people, including children and children with different abilities.
- \* Strive to prioritize **naturalized spaces - whether in public squares and parks or schoolyards**. These spaces should make use of **natural materials**, such as sand, water, pieces of wood, stones, pinecones, and other materials with different natural textures that can be useful in this proposal, so that children can provoke changes in the environment, digging holes, painting, building, and other activities that creativity allows. Moreover, these materials are easy to find, inexpensive, and easily replaceable, while also contributing to creativity and helping to develop sensitivity to the preservation of nature. Avoid crumb

rubber, artificial turf, and other manmade substrates that are known to be sources of exposure to harmful substances, such as lead. They also want to learn to deal with risk, thus climbing trees, hanging high, climbing ladders to pick fruit, or moving quickly through space. These elements serve children with sensory exploration, children with disabilities, and those with different abilities.

- \* **Public open spaces should be accessible to babies, children of different abilities and ages, and their caregivers.** This includes playground equipment suitable for different ages and abilities, as well as facilities that allow for sensory and adventurous play for the holistic development of children.
- \* For children with disabilities and their siblings and parents, a visit to the park can be anything but relaxing, easy, and fun. Often, children in this condition encounter toys and play equipment that they cannot use. Parents may worry about busy streets and lack of fences to keep children within the park boundaries, and they may struggle to care for children with different needs and demands for attention. These circumstances should be considered in the design and planning of green areas. For an inclusive space, consider the following aspects:
  - \* Ensure that recreational areas are surrounded by a fence or railing to provide boundaries for children with **visual or hearing impairments**.
  - \* Install an isolated and secure space, such as a large enough tube for a child to sit in, so that overstimulated children can find relief from images and sounds that may bother them.
  - \* **It is essential to listen to users of public spaces**, which includes children with different abilities and their families. As advocated by the Brazilian Institute of Architects (IAB) (40), community involvement in the creation and planning process makes spaces more relevant and more effectively responsive to specific demands, in addition to increasing adherence to spaces, making them more inclusive, and enhancing the sense of belonging to the place. This includes everything from planning spaces and




access to them, to the toys and equipment available, and the programming offered in the areas.

- \* Consider that naturalized spaces are still not well known among the general population, so it is very important to install explanatory signs that demonstrate their benefits for childhood and the environment. Additionally, using **mixed furniture**, that is, including traditional playground equipment (such as swings, seesaws, playhouses, or slides) in conjunction with naturalized furniture, favors their appropriation by children and caregivers.
- \* In a park, square, or schoolyard, it is essential to have **shaded areas** where children play and where caregivers wait for the children, with lines of sight to the play areas. So, if there are no trees, it is necessary to plant them and combine landscaping with other plants. Choose **native plants** that adapt to the region's climatic conditions, including edible and aromatic ones, which can add sensory and gustatory experiences to the nature experience. Provide information about them to include an educational aspect to the project. Plan for the future: consider how much space fully developed trees and plants need (including space for their roots) and design the spaces with dimensions sufficient for the size of the plants at their maturity.
- \* **Safety in parks is fundamental.** Parents and caregivers feel more relaxed and at ease when they feel that their children are safe in a recreational area. It needs to take into account its overall characteristics, clear lines of sight, passive and active surveillance, permeable visibility at the boundaries, and an efficient signage and lighting system. In addition to safety, lighting can add value to a location in creative ways.
- \* Caregivers will be able to relax more and enjoy the experience if they do not have to constantly keep an eye on the children. In the case of parents and caregivers of children with disabilities, as previously pointed out, this is even more relevant. A **low fence around a playground is sufficient to protect** the children. It is worth noting that the barrier can be created with living fences, objects and urban furniture, or with simple ground markings.

Fences can also be seen as an element for fostering creativity: other uses can be combined with fences, such as opportunities for children to play and climb, or spaces for street art.

- \* The entrances to playground areas should be welcoming, with wide gates that allow caregivers to pass through while carrying children, pushing strollers, wheelchairs, or walkers, and other mobility support devices.
- \* **Consider how caregivers wait while children play.** Therefore, it is essential to install furniture that allows supervision but at a distance where children feel free to play and explore.
- \* In addition to benches, it is important to consider how food can be consumed on-site. Picnic tables, drinking water fountains, and hand hygiene stations are important. Accessible bathrooms and changing tables should also be available in male restrooms so that fathers can change diapers.
- \* Install multiple **trash bins** throughout the park.
- \* Reduce pesticide use in parks and recreational spaces, or at the very least, adopt best practices around use, advanced notice, and when children can safely return to a treated area. Pesticides also fuel the triple planetary crisis - reduces biodiversity, harming ecosystem services, made from petrochemicals, etc.
- \* Consider a flexible design: make sure that a portion of the playground is also free of equipment, leaving space for activities such as jump rope, picnics, balance games, etc. This maximizes the use of space for children of different ages.
- \* Signage to guide children and families to interesting destinations and activities is also important. It should be simple, legible, and easy to maintain, using durable materials, at a height and in a language accessible to all. **Use braille or different textures in signage** to support children with low vision in finding activities.
- \* When planning a new park or square in a neighborhood, it is essential to **consider that visitors can access the space via safe streets**, comfortable routes, and accessible sidewalks.

- \* Spaces for rest and breastfeeding are also welcome in public parks and squares and are an integral part of a child-friendly neighborhood. Breastfeeding is a right, and it is the duty of society to welcome and strengthen this practice. Women can breastfeed anywhere, but welcoming spaces certainly encourage the practice. Therefore, it is important to provide comfortable benches with backs and armrests, consider the importance of shade (natural or artificial), ensure it is a relatively quiet and friendly area, with space to accommodate strollers. Ideally, this area can overlook the playground and offer restroom facilities nearby.
- \* The surroundings of schools should be considered **educational environments**, so simple and low-cost interventions, such as implementing playful spaces and landscaping elements, make the environments more inviting and welcoming for children and their families. Measures such as traffic calming, reducing speed and vehicle flow around schools, and rethinking the behavior of different modes of transportation help reduce CO2 emissions and increase road safety and comfort as well.
- \* Consider the importance of a **good urban tree planting policy**, which ensures shading of the streets, improves the aesthetic experience for pedestrians, contributes to coping with climatic extremes, and can serve as an invitation for people to replace cars with other modes of transportation, such as bicycles and walking, making the experience for children more enjoyable. In addition to tree-planting, it is important to protect our existing, mature trees, which provide the most shade and carbon storage.
- \* In discussions about **city master plans**, it's important to include a focus on childhood, making the city more child-friendly by creating conditions for children to occupy the city safely, with accessibility and autonomy, enabling them to develop their cognitive, psychological, emotional, and social skills through interactions with other children and families in public spaces. 

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# 09. Guidelines for children and adolescents



- \* Whenever you can, get around on foot or by bike. Whether it's going to school, the park, friends' houses or the supermarket. Going on foot or by bike can be a lot of fun, especially if you're accompanied!
- \* Do you know the animals and plants that live near your home? Do you know which park or square is closest to where you live? What

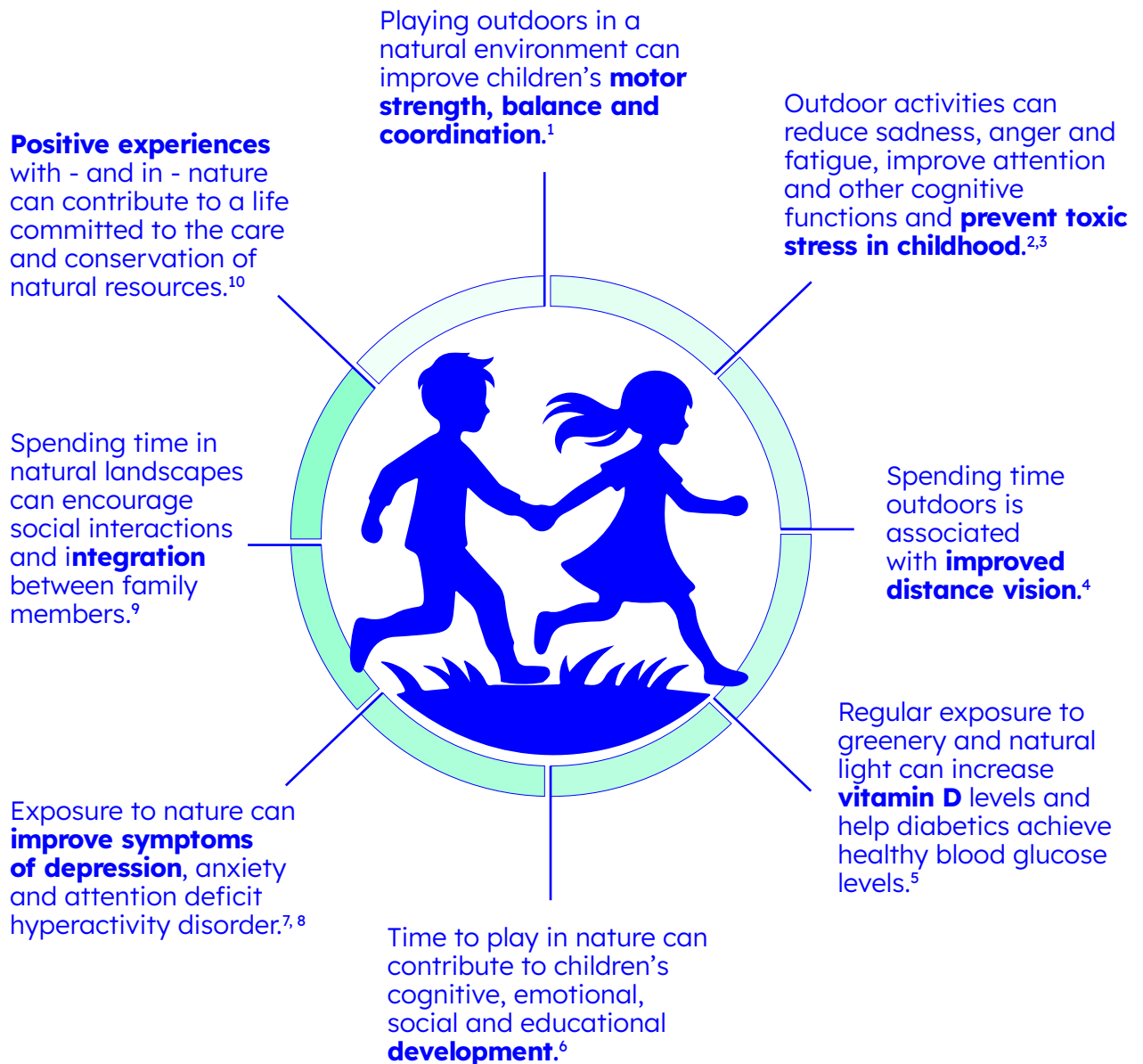
plants and animals are there in these places? **Get out of the house and investigate your neighborhood.** Get to know your neighborhood and share what you discover with your family and friends. Observe the changes that emerge every day.

- \* **What do you like to do most at home? Try doing the same thing outside!** It may seem strange and difficult at first, but if you try you will see that it is easier and more fun than it seems... some ideas: listen to music, read, study, have a snack. And if you do any of these things with a friend, even better!
- \* **Suggest that your group of friends' meetings, parties and celebrations always take place in open spaces.** Parks, squares and backyards are great options for places to socialize and meet.
- \* **Practice physical activity outdoors in a group or with family members.** Anything goes bicycle, rollerblading, volleyball, basketball, football, swimming, surfing, hiking, etc.
- \* **Grow plants, pots or a small vegetable garden.** It's incredible to follow the development of a plant and use it in your own recipes. If you want to go even further, start a community garden with the help of your family and neighbors. Think about how this activity relates to healthy eating habits.
- \* **Suggest that your school and teachers use spaces outside the classroom for learning and social activities.** Search and suggest activities and classes that can take place outdoors. Get involved with the planning and maintenance of your school's natural spaces: tell adults what you like most about playing at recess and what you would like to have in the courtyard and other open spaces.

Be careful and pay close attention to the time you spend in front of screens. More than two hours a day playing video games, interacting on social media or watching videos could be harmful to your health, hinder your academic performance and make you distance yourself from family and friends. **Give preference to outdoor activities!**

- \* Discovering and exploring the natural world outside can be a fantastic experience, but there are some precautions you must take to avoid dangerous situations and make the most of outdoor experiences, respecting other forms of life:
  - \* Whenever you leave the house to play outside, remember to notify an adult and obtain their permission for whatever you plan to do;
  - \* Invite friends to accompany you;
  - \* Pay attention to where you are going so you can find your way back;
  - \* Remember to bring suitable clothing, food and water;
  - \* If you are accompanied by other children, always take care of those younger than you;
  - \* Do not disturb dens or nests, they are very sensitive places for animals;
  - \* Do not bring wild animals home with you;
  - \* Remember to bring all your trash back and place it in an appropriate place for collection;
  - \* If you want to observe animals, be silent and respectful and remember that all beings have the right to life. 🙏

# Benefits of Nature on the Health of Children and Adolescents



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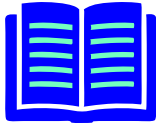
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# 10. Supporting resources



The Alana Institute's Children and Nature program produced various materials, videos, interviews and campaigns about the benefits of contact with nature for the health of children and adolescents. They are a great resource to raise awareness among guardians, educators and health professionals about the importance of playing and learning outdoors in childhood. Below is a small selection of this content. The complete collection can be accessed on the program website ([www.criancaenatureza.org.br](http://www.criancaenatureza.org.br)).





## Books and infographics

Louv, R. *The Last Child in the Woods: Rescuing Our Children from Nature Deficit Disorder*. São Paulo: Aquarian; 2016.

### **Benefits of Nature - Health and Wellness.**

Available from: at: [https://eadn-wc04-796033.nxedge.io/wp-content/uploads/CNN20\\_BNHealth-and-Wellbeing\\_23-3-24.pdf](https://eadn-wc04-796033.nxedge.io/wp-content/uploads/CNN20_BNHealth-and-Wellbeing_23-3-24.pdf)

### **Benefits of Nature - Academic Outcomes.**

Available from:

[https://eadn-wc04-796033.nxedge.io/wp-content/uploads/CNN20\\_BNAcademicOutcomes\\_23-3-25.pdf](https://eadn-wc04-796033.nxedge.io/wp-content/uploads/CNN20_BNAcademicOutcomes_23-3-25.pdf)

### **Nature play can encourage care for the earth.**

Available from: [https://eadn-wc04-796033.nxedge.io/wp-content/uploads/CNN20\\_BNNatureChampions\\_23-3-24.pdf](https://eadn-wc04-796033.nxedge.io/wp-content/uploads/CNN20_BNNatureChampions_23-3-24.pdf)

### **Advance equity in children's connections to nature.**

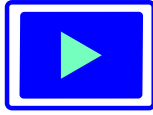
This snapshot conveys the current consensus within Cities Connecting Children to Nature initiative (CCCN) on definitions and principles. It also provides a few illustrative examples of city progress and additional ideas. Available from: [https://eadn-wc04-796033.nxedge.io/wp-content/uploads/CCCN\\_equity\\_resource\\_20-10-22.pdf](https://eadn-wc04-796033.nxedge.io/wp-content/uploads/CCCN_equity_resource_20-10-22.pdf)

### **Green Schoolyard Design Features.**

A gallery with examples and inspirations from a set of fixed and mobile landscaping and design components that can be integrated to make school yards greener. Available from: <https://www.childrenandnature.org/gallery/green-schoolyard-design-features/>

### **Children and Nature Network**

A set of peer-reviewed scientific literature that advocates connecting children with nature. Research curation is guided by the network's Scientific Advisory Board, a multidisciplinary team of experts who bring diverse perspectives to our work. Available from: <https://research.childrenandnature.org/>



## Films and Interviews

### **Nature Deficit Disorder: What is it?**

In this interview, journalist and childhood advocacy specialist Richard Louv guides us in a reflection on the consequences of keeping children and adolescents seated and confined in school or home environments, deprived of direct contact with nature and its benefits for physical and mental health. Available from: <http://bit.ly/2FKHrOl>

### **When the Risk is Worth it**

This video demonstrates how fundamental it is for a child's development to learn to evaluate and take risks to become a resilient adult capable of exploring the world, instead of fearing it. Nature is the ideal environment for children to encounter situations that will help them learn about their limits and possibilities. Available from: <http://bit.ly/2HaQTia>

### **Meeting of Apprentices on the Great Adventure of Living**

Learning and nature go together. Unlocking students means expanding their capacity for knowledge and discovery. This is precisely the role of schools, classrooms and teachers, especially when they are willing to share these experiences with students. Available from: <http://bit.ly/2KEsSed>

### **The Challenge of Technology in Childhood**

Why do we distance ourselves from nature? How can technology help to reverse this gap? Improving children's contact with nature is a collective challenge: it involves the family, school and technology itself, understanding that everyone is allies in rebuilding this interaction. Available from: <http://bit.ly/2r9yFPZ>


### **Immersion in Nature, with Family**

In this interview, doctor and mother Suzanne Crooker shares the discoveries she, her husband and three young children made over nine months living in a cabin, immersed in the nature of an icy forest in Yukon, Canada. Available from: <http://bit.ly/2DSa6ym>

**Nature GPS**

Free tool that helps you map natural areas near you, with suggestions for activities and games that can be done in these locations. Available from: <http://bit.ly/2I0mj6O>

**Kids vision for a just and nature-filled world:**

Children and teens from around the world share art and creative writing that expresses their love of nature along with their thoughts, dreams, questions and concerns about the future. Available from: <https://www.childrenandnature.org/gallery/nature-future/> 

**PRESCRIPTION FOR OUTDOOR PLAY**

**For:** ..... **Date:** ..... / ..... / .....

**This prescription suggests that you:**

- \* Engage in outdoor play and explore more of the nature around you
- \* Take outdoor walks and whenever possible, walk or bike
- \* Adopt healthy habits regarding the use of digital technologies

**Dosage:**

- \* Have fun in nature several times a day.
- \* Consume the contents of this prescription with plenty of water, natural juices, and healthy foods.

**Warning:**

- \* If symptoms of low spirits, lack of curiosity, or lack of friends persist, increase the doses of outdoor playtime.

**Dr.** .....

**CRM:**



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