



# Putting it into Practice: Pediatric Environmental Health Training Resource

## Children and Nature Initiative Rx for Outdoor Activity



Children's  
Environmental  
Health  
Network



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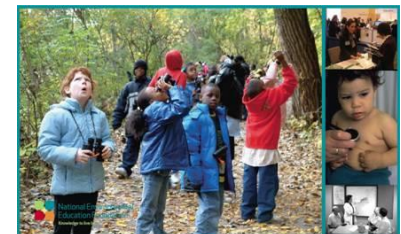




# Children and Nature Initiative

## Rx for Outdoor Activity

- Goal: connect children and families with nature for health benefits
- Create Nature Champions: build capacity among pediatric health care providers to be leaders in prescribing nature
- Refer families to a park or nature site within economically, racially/ethnically, and culturally diverse communities
- Partners, including National Audubon Society, US Fish and Wildlife Service, US Forest Service, National Park Service, Bureau of Land Management, National Recreation and Parks Association, local park agencies and others provide active nature programming



# Advisory Committee



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# Overview: Burden of Obesity and ADHD in Childhood



# Objectives

- Review the growing prevalence of obesity and related diseases
- Review the growing prevalence of mental health disorders such as ADHD
- Understand the relationship of changing lifestyles of US children to this change
- Understand the impact of these chronic conditions on adult disease burden





# Obesity & Related Conditions

## Obesity

- 16.9% of children ages 2-19 are obese (BMI  $\geq$  95%ile)<sup>1</sup>
- 31.8% are overweight (BMI  $\geq$  85%ile)<sup>2</sup>
- Overweight 5 year olds are 4 times more likely to become obese than normal weight children<sup>3</sup>

## Childhood obesity predicts adult morbidity

- 80% of obese youth become obese adults<sup>4</sup>

## Related conditions

- Type-2 diabetes, hypertension (HTN)
- Metabolic syndrome

<sup>1</sup>Ogden CL et al. *JAMA* 2014;311(8):806-814.

<sup>2</sup>Ogden CL, et al. *JAMA* 2010;303(3):242-249.

<sup>3</sup>Cunningham SA et al. *NEJM* 2014;370(5):403-11.

<sup>4</sup>Whitaker RC et al. *NEJM* 1997;337:869-73.



# Obesity-Related Diseases

## Type 2 diabetes mellitus (DM)

- Formerly known as **adult-onset** diabetes
- ~ 186,300 children had Type I and Type II DM in 2007<sup>1</sup>
- 3,700 children diagnosed with Type II DM each year<sup>1</sup>
- CDC estimates: 1 in 3 children born in 2000 will develop DM if present obesity trends are not reversed<sup>2</sup>

<sup>1</sup>CDC National diabetes fact sheet 2007

<sup>2</sup>Narayan KN et al. *JAMA* 2003;290:1884-90.



# Obesity-Related Diseases

## Hypertension

- BMI <85<sup>th</sup> %ile: 2.6% of children with HTN
- BMI ≥95<sup>th</sup> %ile: 10.7% with HTN<sup>1</sup>

## Cardiovascular disease

- High cholesterol levels, abnormal glucose tolerance, and HTN in children<sup>2</sup>
- Overweight adolescents are at increased risk of coronary heart disease and early death<sup>3</sup>

<sup>1</sup>Sorof J et al. *Pediatrics* 2004;113:475-82.

<sup>2</sup>Dietz W. *Pediatrics* 1998;101:518-25.

<sup>3</sup>Ludwig DS. *NEJM* 2007;357:2325-27.



# Other Medical Issues

## Asthma

- Overweight children at increased risk for developing asthma, other respiratory problems<sup>1</sup>, asthma hospitalizations<sup>2</sup>

Possible relationships between asthma and sedentary lifestyles, including lack of physical activity and television viewing<sup>3,4</sup>

<sup>1</sup>Schachter LM. *Thorax* 2001;56:4-8.

<sup>2</sup>Bender B et al. *Pediatrics*, 2007;120:805-13.

<sup>3</sup>Rasmussen F. *European Respiratory Journal* 2000;16:866-70.

<sup>4</sup>Sheriff A, et al. *Thorax* 2009;64:321-5.



# Other Medical Issues

## Vitamin D Deficiency

- 9% of US children are vitamin D deficient
- 61% are insufficient<sup>1</sup>
- Physical activity may be associated with vitamin D levels<sup>2</sup>

## Mental Health – ADHD/ADD

- Variable estimates, but prevalence is increasing
- National Health Interview Survey estimates 9% of US children with ADHD/ADD<sup>3</sup>
- Impairs school performance and socialization; may persist into adulthood

<sup>1</sup>Kumar J, et al. *Pediatrics* 2009;124:e362-70

<sup>2</sup>Ohta H, et al. *J Bone Miner Metab* 2009;27:682-8

<sup>3</sup>Pastor PN, et al. *Vital Health Stat* 2008;10:237



# Active vs. Sedentary Lifestyle

Physical activity reduces risk for

- Coronary artery disease, HTN
- Diabetes, osteoporosis, colon cancer

The US is shifting to a sedentary lifestyle

Physical activity in adulthood begins in childhood

- 40% of adults report NO leisure physical activity<sup>1</sup>
- Kids learn by watching their parents

<sup>1</sup> Center for Health Statistics. Health, United States, 2007 with Chartbook on Trends in the Health of Americans. 2007.



# Obesity & Physical Activity

## Nationwide shift in physical activity

- Active teens become active adults
- In 2011, only 29% of HS students met recommended level of physical activity<sup>1</sup>

## Growth in electronic media

- 31% played video or computer games >3 hours on an average school day<sup>1</sup>
- Average child watches 3 hours TV daily<sup>2</sup>
- 7.5 hours per day spent with all forms of e-media (TV, Internet, chats, games, etc)<sup>3</sup>

<sup>1</sup>CDC. Youth risk behavior surveillance 2011. MMWR 2012; 61(4):35-36

<sup>2</sup>AAP, Committee Public Ed. *Pediatrics* 2001;107:423-6

<sup>3</sup>Rideout VJ et al. Kaiser Family Foundation Report. 2010

# Obesity & Physical Activity



## Growth in electronic media

- 32% of 2-7 year-olds & 65% of 8-18 year-olds have TVs in bedrooms<sup>1</sup>

Time spent in front of TV or computer = time not spent being physically active

Estimated 25% loss of play time and 50% loss in an unstructured outdoor activity<sup>2</sup>

## No Child Left Behind 2001

- Increased time for reading and math
- But at the expense of physical education<sup>3</sup>

<sup>1</sup> Roberts DF et al. Henry J Kaiser Family Foundation Report, 1999.

<sup>2</sup> Juster FT et al. Changing Times of American Youth: 1981-2003. University of Michigan, 2004.

<sup>3</sup> Dillon S. Schools cut back subjects to push reading and math. New York Times March 26; 2006.





# Health Benefits of Nature & Outdoor Activity

## Part I: Physical Health



# Objectives

- Review the evidence surrounding health and activity levels of children, particularly as they pertain to natural environments
- Understand the benefits of outdoor play on children's health and mental well being
- Understand the role that natural environments have in improving outdoor physical activity for children



# Health Benefits of Nature

- Increases physical activity
- Restorative/Therapeutic
- Reduces childhood stress
- Coping tool for ADD/ADHD
- Developmental benefits:
  - Social, Cognitive, Emotional, Physical





# Time Outdoors & Physical Activity

- Time spent outdoors usually equates to increased physical activity<sup>1</sup>
- Study among 10-12 year olds<sup>2</sup>
  - For every hour spent outside, physical activity increased by 27 minutes/week
  - Prevalence of overweight was 27-41% lower among those spending more time outdoors

<sup>1</sup>Burdette HL, et al. *Arch Pediatr Adol Med* 2004;159:46-50.

<sup>2</sup>Cleland V, et al. *Int J Obesity* 2008;32:1685-93.

# School Grounds & Physical Activity



- Canadian emphasis on “green school grounds”
  - Diverse environmental features—trees, gardens, nature trails
- Survey of teachers, parents, administrators
  - 70% agreed it increased students’ light-moderate activity
  - 50% agreed it increased vigorous activity
  - Grounds supported wider variety of play



# Parks & Physical Activity

- Associations between healthy weight & availability of 13 specific parks within 1 km of residence
  - No relationship found between BMI and simply living near a park
  - However, for children who lived within 1 km of park **with a playground**, children were **5 times** more likely to have a healthy weight
  - Relatively small study of 108 children may limit ability to find significant relationships



# Parks & Physical Activity

- Study of 1556 sixth grade girls across 7 cities in the U.S.
- Measured moderate-to-vigorous physical activity (MVPA) of girls over 6 days
- Girls who lived near 1 or more parks within 1/2 mile had higher levels of non-school MVPA than girls who did not
  - Higher levels of physical activity associated with park features such as walking paths, running tracks, playgrounds, basketball courts, streetlights and floodlights

Cohen DA. *Pediatrics* 2006.118,1381-1389.



# Parks & Physical Activity

- Larger study of 8 parks in Los Angeles
- Parks were in predominantly African American or Hispanic neighborhoods
  - Poverty range 13.8% to 47.3%
- 2000 individuals counted in each park
  - Vigorous activity associated with sports courts and playgrounds
- Proximity of residence predicts park use and physical activity
  - Those living < 1 mile away were more likely to use the park and had 38% more exercise sessions than those living farther away





# American Academy of Pediatrics (AAP)

## 2006 Policy Statement “Active healthy living: prevention of childhood obesity through increased physical activity”

- Lifestyle-related physical activity as opposed to aerobics linked to **sustained** weight loss
- Infants and toddlers should be allowed outdoor physical activity and unstructured free play and exploration
- Parents should encourage children to play outside as much as possible



# Health Benefits of Nature and Outdoor Activity Part II: Mental Health



# Nature as a Restorative Mechanism

- Nature alone can influence recovery from surgery
  - Compared 23 matched pairs of patients who underwent a cholecystectomy
  - Randomly assigned the post-surgery patients to either rooms facing a brick wall or rooms with views of nature
  - Findings: those facing nature had shorter post-operative hospital stays, fewer negative comments from nurses, and took less analgesics
  - Suggests that viewing nature alone can aid in the path of recovery



# Nature as a Restorative Mechanism

- RCT- used distraction therapy during a flexible bronchoscopy (FB) while consciously sedated
  - Randomly assigned to either a normal FB or FB plus distraction therapy (nature sights and sounds)
  - Patients rated the level of pain experienced and anxiety
- Findings: Pain control was much better for the intervention group than the control groups [OR: 4.76]
  - Clinicians should supplement analgesic medications with an inexpensive, non-invasive method of distraction therapy



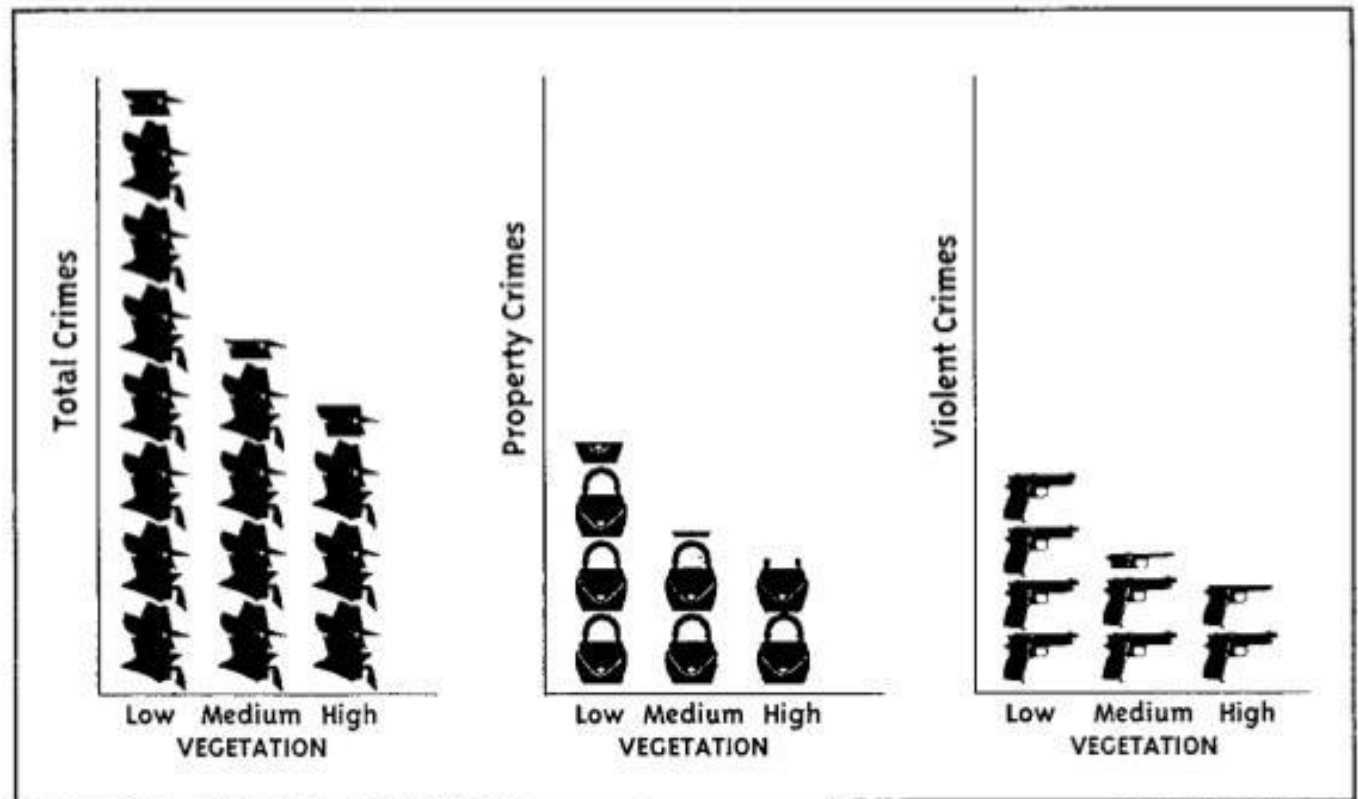
# Effects of Nature on Crime

- How could vegetation decrease crime?
  - More eyes on the street
  - Well maintained vegetation can act as a 'territorial marker' – implied surveillance
  - Mitigation of Mental Fatigue Symptoms
- Compared crime rates for 98 Chicago Public Housing Buildings with different levels of vegetation
- Homogeneous population for Income, Education, Life Circumstances
- Controlled for
  - # of apartments per building
  - Building height
  - Vacancy rate
  - # of occupied units



# Effects of Nature on Crime

Kuo, Sullivan / VEGETATION AND CRIME 355



**Figure 3: Mean Number of Crimes Reported Per Building for Apartment Buildings With Different Amounts of Vegetation (each icon represents one reported crime)**



# Reduce Childhood Stress

- Study of 337 rural NY children in 3-5 grade
- Examined child's self-worth and levels of psychological distress
- Identified whether they live in natural environment, using "Naturalness Scale"
- Lewis Stressful Life Events Scale
  - Questions about bullying, arguing with parent, peer pressure, recent moves
  - Frequency of occurrences, not severity
- Rutter Child Behavior Questionnaire, Global Self-Worth subscale

# Reduce Childhood Stress Results



- Nature appeared to act as a buffer to decrease stress in rural children
- Lower levels of stress in the child were noted with increased amount of exposure to natural environments
- The nature exposure effect was especially pronounced for children with the highest levels of stressful events
- Higher nature associated with positive self-worth





# Physical Activity in Natural Environments

## Effects on mood and blood pressure

Synergistic health effects between physical activity and exposure to nature (“green exercise”)

- Intervention: Subjects ran on treadmill while shown 4 different themes of pictures
  - Rural pleasant, urban pleasant, rural unpleasant, urban unpleasant photographs
- Results: the rural and urban pleasant nature pictures showed a significant reduction in blood pressure and a more positive effect on mood than exercise alone
  - Participants in the rural pleasant group had the largest reduction in blood pressure

# Physical Activity in Natural Environments Systematic Review



Outdoor exercise brings more positive effects on mental wellbeing than exercising indoors

- 11 trials comparing mental wellbeing after a short walk or run outdoors and indoors
- 9 of 11 trials showed improved mental wellbeing following outdoor exercise
- Outdoor exercise associated with revitalization, decreases in tension, confusion, anger, depression, and increased energy
- Greater intent to repeat outdoor activity

# Effects of Nature on ADD/ADHD



- Does contact with nature improve inattentiveness?
- Survey of parents compared child's symptoms when engaging in various settings
  - Indoor setting– windowless room
  - Natural outdoor setting– park, farm, outdoor neighborhood public space

# Effects of Nature on ADD/ADHD



- Outcome measure were 4 inattentive symptoms
  - Inability to stay focused on unappealing tasks
  - Inability to complete tasks
  - Inability to listen and follow directions
  - Being easily distracted
- Findings
  - Activities in natural settings were helpful in reducing inattentive symptoms
  - As tree cover in the setting increased, inattentive symptoms decreased

# Effects of Nature on ADD/ADHD



Nationwide study examined if “green” settings reduced symptoms of ADHD

- Compared green outdoor after-school/weekend activities to activities in built indoor/outdoor settings
- Findings: “green outdoor activities reduced symptoms significantly more than did activities conducted in other settings, even when matched across all settings”

Critique: Not randomized, not controlled, “green activities” are not uniformly defined

# Effects of Nature on ADD/ADHD



- Prospective study of low income, urban children who relocated to new home
  - $n = 17$
- Compared 2 home environments to assess for natural environments
  - Pre move visit and post move visit several months later
  - Compared few natural elements and those with plants and views of nature
- Direct Attention Capacity was measured by Attention-Deficit Disorders Evaluation Scale

# Effects of Nature on ADD/ADHD



- New home was more likely to have greater number of natural elements than old one
- The change in the natural environment was a significant predictor of the improvement in their attention score
- While the general quality of the housing also improved after the move, this was not a predictor of improved attention

# Effects of Nature on ADD/ADHD



- Children completed a series of puzzles designed to create mental fatigue
- Children with ADHD guided through 20 minute walk in 3 different environments
  - A city park
  - An urban area
  - A residential area
- Children next completed tests of concentration and impulse control
  - Concentration significantly better after a walk in the park, compared to other 2 settings



# Nature Aiding Childhood Development



AAP Clinical Report:  
importance of play in a child's  
social, emotional, cognitive,  
and physical development

- Benefits of play – develop healthier cognition, a more developed imagination, dexterity, emotional strength, and physical strength
- Play builds active healthy children
- Advice for pediatricians: children should get free unstructured play outside



# National Movement



- APHA Policy Statement on Nature, Health and Wellness (#20137) [www.apha.org/advocacy/policy/policysearch/](http://www.apha.org/advocacy/policy/policysearch/)
- We Can! [www.nhlbi.nih.gov/health/public/heart/obesity/wecan/](http://www.nhlbi.nih.gov/health/public/heart/obesity/wecan/)
- President's Council on Fitness, Sports & Nutrition [www.fitness.gov](http://www.fitness.gov)
- DHHS Physical Activity Guidelines [www.health.gov/paguidelines/](http://www.health.gov/paguidelines/)
- America's Great Outdoors Initiative [www.americasgreatoutdoors.gov](http://www.americasgreatoutdoors.gov)
- Healthy Parks Healthy People US [www.nps.gov/public\\_health/hp/hphp.htm](http://www.nps.gov/public_health/hp/hphp.htm)
- Let's Move [www.letsmove.gov](http://www.letsmove.gov)
- Let's Move Outside [www.letsmove.gov/lets-move-outside](http://www.letsmove.gov/lets-move-outside)
- AAP and White House Obesity Initiative <http://www2.aap.org/obesity/whitehouse/>
- Exercise is Medicine [www.exerciseismedicine.org](http://www.exerciseismedicine.org)
- Children & Nature Network [www.childrenandnature.org](http://www.childrenandnature.org)
- Every Body Walk! <http://everybodywalk.org/>



# Prescribing Exercise

- Swedish study measured effectiveness of issuing 6300 physical activity referrals over 2 years
  - Half of the patients reached reported increased physical activity at 3 months and 12 months<sup>1</sup>
- Program in Spain recruited 4000 physically inactive patients and provided exercise referrals to half
  - 6 months later, patients who received the referrals were more active<sup>2</sup>

<sup>1</sup> Leijon et al. *Scand J Med Sci Sports* 2009;19:627-36.

<sup>2</sup> Grandes et al. *Arch Intern Med* 2009;169:694-701



# What Clinicians Can Do

- Recognize that families may use the Internet as a primary source of information
  - Emphasize appropriate sites for information (ie AAP, CDC, etc)
  - [www.aap.org/healthtopics/nutrition.cfm](http://www.aap.org/healthtopics/nutrition.cfm)
- Promote healthy eating habits
- Decrease screen time to  $\leq 2$  hours/day
- Promote appropriate activity levels in children (1 hour per day)



# What Clinicians Can Do

- Encourage that at least some of this activity occur in the outdoor, natural environment
  - May be particularly relevant for patients with ADHD and other mental health issues
- Particular emphasis should be on unstructured, exploratory play
- Become advocates in the school to support physical education in the schools



# Prescribing Nature

- Ample evidence attributing improved health with physical activity
- Some evidence that nature specifically can improve attention and other psychosocial aspects of health and reduce stress
- Children should be encouraged to play outside
- Physicians should consider “prescribing” outdoor play for physical and mental health benefits



# Children and Nature Initiative

## Rx for Outdoor Activity

- Goal: connect children and families with nature for health benefits
- Create Nature Champions: build capacity among pediatric health care providers to be leaders in prescribing nature
- Refer families to a park or nature site within economically, racially/ethnically, and culturally diverse communities
- Partners, including National Audubon Society, US Fish and Wildlife Service, US Forest Service, National Park Service, Bureau of Land Management, National Recreation and Parks Association, local park agencies and others provide active nature programming



# Children and Nature Initiative Tools & Resources



- Fact Sheets – Nature and Health (Adults, Children)
- Health Care Provider Kits: Prescription Pads, Patient Brochures, Pediatric Environmental History Form in English and Spanish
- Training PowerPoint
- Peer-reviewed Publications
  - Using nature and outdoor activity to improve children's health--McCurdy, Winterbottom, Mehta, Roberts. *Current Problems in Pediatric and Adolescent Health Care* 2010;40
  - Building on Partnerships: Reconnecting Kids With Nature for Health Benefits—Kruger, Nelson, Klein, McCurdy, Pride, Ady. *Health Promotion Practice* (May 2010)
- Webpage with links to Additional Resources



# Pediatric Environmental History Screening Forms



## Pediatric Environmental History (0-18 Years of Age)

### The Screening Environmental History

For all of the questions below, most are often asked about the child's primary residence. Although some questions may specify certain locations, one should always consider all places where the child spends time, such as daycare centers, schools, and relative's houses.

Where does your child live and spend most of his/her time? \_\_\_\_\_

What are the age, condition, and location of your home? \_\_\_\_\_

Does anyone in the family smoke? ☐ Yes ☐ No ☐ Not sure

Do you have a carbon monoxide detector? ☐ Yes ☐ No ☐ Not sure

Do you have any indoor furry pets? ☐ Yes ☐ No ☐ Not sure

What type of heating/air system does your home have?  
☐ Radiator ☐ Forced air

What is the source of your drinking water?  
☐ Well water ☐ City water

Is your child protected from sun?  
☐ Yes ☐ No ☐ Not sure

Is your child exposed to any environmental hazards?  
☐ Yes ☐ No ☐ Not sure

What are the occupations or hobbies of your child?  
☐ None ☐ Other \_\_\_\_\_

Does your child watch TV, or use a computer or video game system more than two hours a day?  
☐ Yes ☐ No ☐ Not sure

How many times a week does your child have unstructured, free play outside for at least 60 minutes?  
☐ Yes ☐ No ☐ Not sure

Do you have any other questions or concerns about your child's environment or symptoms that may be a result of his or her environment?  
 \_\_\_\_\_

Follow up/ Notes

The Screening Environmental History is taken in part from the following sources:

- American Academy of Pediatrics Committee on Environmental Health. Pediatric Environmental Health 2nd ed. Etzel RA, Balk SJ, Eds. Elk Grove Village, IL: American Academy of Pediatrics; 2003. Chapter 4: How to Take an Environmental History.
- Balk SJ. The environmental history: asking the right questions. *Contemp Pediatr*. 1996;1319-36.
- Frank A, Balk S, Carter W, et al. Case Studies in Environmental Medicine. Agency for Toxic Substances and Disease Registry. Atlanta GA. 1992, rev. 2000. Taking an Exposure History.

This screening environmental history is designed to capture most of the common environmental exposures to children. The screening history can be administered regularly during well-child exams as well as to assess whether an environmental exposure plays a role in a child's symptoms. If a positive response is given to one or more of the screening questions, the primary care provider can consider asking questions on the topic provided in the Additional Categories and Questions to Supplement the Screening Environmental History, accessible at [www.neefusa.org/pdf/PEHhistory.pdf](http://www.neefusa.org/pdf/PEHhistory.pdf).



Additional resources and Spanish language materials available at [www.neefusa.org/health](http://www.neefusa.org/health)  
[health@neefusa.org](mailto:health@neefusa.org)



## Historia Pediátrica Ambiental (0-18 Años de Edad)

### La Historia Ambiental Exploratoria

Para todas las siguientes preguntas, que generalmente se hacen acerca del lugar de residencia principal del niño. Aunque algunas preguntas pueden especificar sitios determinados, uno siempre debe tomar en cuenta todos los lugares donde el niño pasa el tiempo, tales como guarderías, escuelas y casas de los parientes.

¿Dónde vive su hijo(a) y dónde pasa la mayor parte del tiempo? \_\_\_\_\_

¿Cuál es la antigüedad, condición y ubicación de su casa? \_\_\_\_\_

¿Hay algún fumador en la familia? ☐ Sí ☐ No ☐ No está seguro

¿Tiene un detector monóxido de carbono? ☐ Sí ☐ No ☐ No está seguro

¿Tiene alguna mascota peluda dentro la casa? ☐ Sí ☐ No ☐ No está seguro

¿Qué tipo de calefacción/aire acondicionado tiene en su casa?  
☐ Radiador ☐ Aire acondicionado

¿Cuál es la fuente de su agua de beber?  
☐ Pozo ☐ Agua de la ciudad

¿Está protegido su hijo de la exposición al sol?  
☐ Sí ☐ No ☐ No está seguro

¿Está expuesto su hijo a cualquier tipo de agente ambiental?  
☐ Sí ☐ No ☐ No está seguro

¿Cuáles son las ocupaciones o hobbies de su hijo?  
☐ Ninguna ☐ Otra \_\_\_\_\_

¿Mira televisión o usa un computador o sistema de videojuegos más de dos horas al día?  
☐ Sí ☐ No ☐ No está seguro

¿Cuántas veces por semana juega libremente al aire libre por al menos 60 minutos?  
☐ Sí ☐ No ☐ No está seguro

¿Tiene otras preguntas o preocupaciones acerca del ambiente, los síntomas o enfermedades que puedan ser resultado del medio ambiente?  
 \_\_\_\_\_

Seguimiento/Notas:

La Historia Ambiental Exploratoria está tomada en parte de las siguientes fuentes:

- American Academy of Pediatrics Committee on Environmental Health. Pediatric Environmental Health 2nd ed. Etzel RA, Balk SJ, Eds. Elk Grove Village, IL: American Academy of Pediatrics; 2003. Chapter 4: How to Take an Environmental History.
- Balk SJ. The environmental history: asking the right questions. *Contemp Pediatr*. 1996;1319-36.
- Frank A, Balk S, Carter W, et al. Case Studies in Environmental Medicine. Agency for Toxic Substances and Disease Registry. Atlanta GA. 1992, rev. 2000. Taking an Exposure History.

Esta historia ambiental exploratoria está diseñada para captar las exposiciones ambientales más comunes de los niños. La historia ambiental exploratoria puede ser aplicada regularmente durante los exámenes rutinarios del niño, así como también para evaluar si las exposiciones ambientales juegan un papel en la sintomatología del niño. Si se obtiene una respuesta positiva a una o más de las preguntas, el proveedor de salud primaria puede considerar hacer más preguntas de acuerdo a las Categorías y Preguntas Adicionales para Complementar la Historia Ambiental Exploratoria, disponible en [www.neefusa.org/pdf/Additional%20Questions%20SP.pdf](http://www.neefusa.org/pdf/Additional%20Questions%20SP.pdf).



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# Prescription for Outdoor Activity



**R<sub>x</sub> for Outdoor Activity**

Name \_\_\_\_\_  
Date \_\_\_\_\_

**My Schedule** *(when and where will you play outside this week?)*

Weekdays \_\_\_\_\_  
Weekends \_\_\_\_\_

Parent/Child signature \_\_\_\_\_  
Health Care Provider signature \_\_\_\_\_

**Go Outside and:**

- Play!
- Visit a park, forest, wildlife refuge, fish hatchery, playground, or nature center
- Take a walk around the block
- Ride bikes (wear a helmet), go bird watching, or just explore.

Comments: \_\_\_\_\_



**R<sub>x</sub> para la Actividad al Aire Libre**

Nombre \_\_\_\_\_  
Fecha \_\_\_\_\_

**Mi horario** *(¿cuándo y dónde jugará al aire libre esta semana?)*

Los días de la semana \_\_\_\_\_  
Los fines de semana \_\_\_\_\_

Firma de madre/padre o hijo/a \_\_\_\_\_  
Firma del Proveedor de Cuidado Médico \_\_\_\_\_

**Vaya afuera y:**

- ¡Juege!
- Visite un parque, un bosque, un refugio de vida silvestre, un criadero de peces, un patio de recreo, o un centro de naturaleza
- Dé un paseo por el vecindario
- Ande en bicicleta (¡use un casco!), observe las aves o simplemente explore.

Comentarios: \_\_\_\_\_



# Patient Brochure



## Nature is all around you.

It's in your neighborhood, in a tree, park, or school yard or even in your backyard!

## Where to Go in Your Area:

*Label listing local nature sites  
to be placed here*

To find a park, forest, wildlife refuge,  
fish hatchery, playground, or  
nature center near you, go to:  
[www.neefusa.org/health/children\\_nature](http://www.neefusa.org/health/children_nature)



The National Environmental Education Foundation encourages parents and caregivers to create opportunities for children to play outside in a natural environment or in a safe neighborhood space. Together we can teach them how to appreciate the environment and protect their health!

Additional resources and Spanish language materials available at [www.neefusa.org/health/children\\_nature/resources](http://www.neefusa.org/health/children_nature/resources)





# Patient Brochure



**Pasar su tiempo libre en medio de la naturaleza puede enriquecer la vida de sus hijos porque los hará más sanos y felices y además aumentará su aprecio por el aire libre por toda su vida.**

Estar al aire libre hace que:

- sus hijos hagan más ejercicio
- sus tensiones se reduzcan
- mejoren la concentración y estén más atentos en la escuela
- su desarrollo mental y físico sea mejor



*¿Pasa su hijo/a más de dos horas al día mirando la televisión, usando el Internet o jugando videojuegos?*

**En vez de...**

Mirar la televisión

**Su Familia Puede...**

Visitar un parque, un bosque, un refugio de vida silvestre, un criadero de peces, un patio de recreo, o un centro de naturaleza

**En vez de...**

Jugar los videojuegos

**Su Familia Puede...**

Dar un paseo por el vecindario

**En vez de...**

Navegar la red

**Su Familia Puede...**

Observar las aves

Aquí se presentan unas ideas para actividades familiares al aire libre y en la naturaleza.

■ **¡Conozca a sus vecinos!**

Vayase a un parque. ¿Cuántos tipos de árboles, aves, e insectos puede nombrar? Saque una guía de la biblioteca para aprender más.

■ **¡Pare! ¡Mire! ¡Escuche!**

Camine rápido o corra al aire libre con su hijo/a. De regreso, camine lentamente; mire y escuche atentamente. Apunte todo lo que descubrió en la naturaleza.

■ **¡Salve un espacio verde!**

El trabajo comunitario con su hijo/a es una manera divertida de quemar calorías. Revise el sitio Web de su ciudad para ver las fechas de trabajo como voluntario en un área verde cerca de usted.

■ **¡Actúe como un animal!**

Anime a su hijo/a a que imite animales— como por ejemplo saltar como una rana, correr como un venado, agitar los brazos como un ave, o explorar como un mapache.

■ **¡Haga un curso de ejercicio!**

Ayude a su hijo/a a dibujar un mapa de su parque local. Escoja varios sitios en donde hacer ejercicios diferentes. Haga este curso con su hijo/a una vez por semana.

■ **¡Fijese en el cambio!**

Mantenga un registro con su hijo/a para apuntar los cambios cada vez que salgan para caminar o andar en bicicleta. ¿Está soleado o nublado? ¿Ruidoso o tranquilo? ¿Húmedo o seco?

# Infographic





# Apps for Outdoor Activity



## Get into Nature for Better Health!

### 10 Free Apps

Ideas on where to go and what to do!

#### Explore!

- **Oh, Ranger! Park Finder** – Find a nearby public land! Includes forests, refuges, parks, and more. ♦★
- **Chimani** – Your travel guide, map, audio tour, and a whole lot more for parks around the country. ♦★



#### Get Fit!

- **Every Body Walk!** – Acts as a pedometer to track time and distance on your walks, calculates calories burned, and saves your progress. ♦★
- **EveryTrail** – Follow guides or document your own walk, bike, or hike outdoors; everywhere from forest trails to city neighborhoods. ♦★

#### Discover!

- **Project Noah** – Document local wildlife as a citizen scientist! Users can go on missions to help gather data for real research projects. ♦★
- **What's Invasive** – Learn to recognize and report invasive species, sending your coordinates and notes to invasive specialists. ♦★
- **Creek Watch** – Monitor your local watershed. Report observations to local water control boards to help keep our streams clean. ★

♦ Compatible with Android ★ Compatible with iPhone

#### Have Fun!

- **The Hidden Park** – Local parks become magical fantasy lands where kids can run around for an adventure. ★
- **Seek 'n Spell** – Run through the park gathering virtual letters to spell words and gain points! Great for young kids, solo, or group play. ♦★

#### Be Safe!

- **First Aid: American Red Cross** – Instructions to guide you through common first-aid scenarios. ♦★

#### Additional Resources:

**Children & Nature Initiative:  
Rx for Outdoor Activity**  
Learn about connecting with nature for better health  
[neefusa.org/health/children\\_nature](http://neefusa.org/health/children_nature)



#### Discover the Forest

Get ideas of where to go, what to do, and how to make the most of your trip to the forest.  
[www.discovertheforest.org](http://www.discovertheforest.org)

#### Hands on the Land

Network of field classrooms and resources to help connect with public lands and waterways.  
[www.handsontheland.org](http://www.handsontheland.org)


#### Recreation.gov

Discover America's public lands. Search for places and activities near you.  
[www.recreation.gov](http://www.recreation.gov)



# Health and Nature Fact Sheets





Health & Environment  
A National Environmental Education Foundation Program

FACT SHEET  
ADULT HEALTH AND NATURE

Current State of Adult Health

Adult populations in the United States are burdened by chronic diseases that lead to decreased quality of life, increased health care costs, and preventable morbidity and mortality. Many of these illnesses have a strikingly disproportionate impact on minority populations and those with low socioeconomic status.

More than one third of the population, or 149 million U.S. adults over age 20, is overweight or obese.<sup>1,2</sup> Obesity is associated with increases in mortality rates and risk for widespread chronic illnesses, including type 2 diabetes, hypertension, high cholesterol, heart disease, stroke, respiratory illnesses, and some cancers.<sup>1,2</sup> Type 2 diabetes is associated with shorter life expectancy and minority adults are twice as likely as white adults to be affected.<sup>3</sup> More than 60 million Americans have hypertension and high cholesterol, much of which is uncontrolled.<sup>4</sup> Cardiovascular disease affects 1 in 3, or more than 83 million, and heart attack and stroke are the first and third leading causes of death in the United States.<sup>4</sup> Death rates are 37% higher among African Americans than whites and American Indian and Alaska natives have the highest percentage of premature death associated with cardiovascular disease.<sup>4</sup> Asthma is another chronic illness on the rise that affects over 18 million, or 1 in 12, adults.<sup>5</sup> Multi-race and black adults, women of all races, individuals with lower income and education levels, and those who are overweight are more likely to have asthma.<sup>5,6</sup> Mental illness is also prevalent, affecting 25% of all U.S. adults, and can adversely affect the outcomes of other chronic illnesses.<sup>7</sup>



Lifestyle modification with medical management, diet, physical activity, and behavior therapy, including stress management, are recommended for the control of these conditions.<sup>3,4</sup> Nature has long been used in cultures around the world as a form of healing and a way to foster good health. Research demonstrates that contact with nature benefits people of all ages and can positively impact health. Access to nature has been related to better health, greater physical and mental well-being, restoration from stress, and greater social connectivity.


Health & Environment  
A National Environmental Education Foundation Program

FACT SHEET  
CHILDREN'S HEALTH AND NATURE

Current State of Children's Health

Our children may be the first generation at risk of having a shorter lifespan than their parents [1]. Sedentary lifestyle and physical inactivity have contributed greatly to the numerous health problems plaguing today's children. Chronic conditions such as childhood obesity, asthma, attention-deficit disorder, and vitamin D deficiency have all increased over the past few decades [2, 3]. These conditions may lead to pulmonary, cardiovascular, and mental health problems in adulthood, and disadvantaged children are most at risk. Low-income and minority children are often more cut-off from nature due to the "built environment" around them: poor housing conditions, high-volume traffic, and a lack of parks and green space [4]. Outdoor activity in the natural environment has taken a back seat to television, video games, the computer, and a demanding schoolwork and extracurricular schedule. While losing contact with the natural environment, today's youth are missing key opportunities for physical activity, stress reduction, attention restoration, and healthy development.



**Childhood Obesity**

The national prevalence of childhood obesity grew significantly, from 14.8% in 2003 to 16.4% in 2007.<sup>1</sup> The combined prevalence of overweight and obesity among U.S. children ranges from a low of 29% in Utah and Minnesota to a high of 44% in Mississippi [5]. According to the Institute of Medicine, childhood obesity has doubled over the past 30 years for preschoolers and adolescents, and more than tripled for children aged 6 to 11 years old [6].

Disparities in childhood obesity are also rising. The prevalence of combined overweight and obesity in children living in poverty increased from 39.8% in 2003 to 44.8% in 2007 compared with children living in higher income households (22.9% in 2003, 22.2% in 2007). In Hispanic children, prevalence of childhood overweight and obesity rose from 37.7% in 2003 to 41% in 2007, compared with non-Hispanic children (29.9% in 2003, 29.6% in 2007). Prevalence of overweight and obesity was 41.1% for black children in 2007, compared to 26.8% in white children [5].


<sup>1</sup>Overweight: BMI ≥ 25<sup>th</sup> percentile and < 95<sup>th</sup> percentile; childhood obesity = BMI ≥ 95<sup>th</sup> percentile. BMI = Body-mass index, calculated using the formula: weight (lb) / (height (in))<sup>2</sup> x 703. To calculate BMI, visit <http://www.cdc.gov/nchs/nhanza/calculator.htm>

- Summarizes key scientific studies on the health benefits of nature across the lifespan

[www.neefusa.org/health/children\\_nature/resources.htm](http://www.neefusa.org/health/children_nature/resources.htm)

# AAP Prescription




**for Healthy Active Living**

Name \_\_\_\_\_ Date \_\_\_\_\_

**Ideas for Living a Healthy Active Life**

**5** Eat at least 5 fruits and vegetables every day.

**2** Limit screen time (for example, TV, video games, computer) to 2 hours or less per day.

**1** Get 1 hour or more of physical activity every day.

**0** Drink fewer sugar-sweetened drinks. Try water and low-fat milk instead.

**My Goals (choose one you would like to work on first)**

☐ Eat \_\_\_\_\_ fruits and vegetables each day.

☐ Get \_\_\_\_\_ minutes of physical activity each day.


☐ Reduce screen time to \_\_\_\_\_ minutes per day.


☐ Reduce number of sugared drinks to \_\_\_\_\_ per day.

Patient or Parent/Guardian signature \_\_\_\_\_

Doctor signature \_\_\_\_\_

From Your Doctor


**American Academy of Pediatrics**  
DEDICATED TO THE HEALTH OF ALL CHILDREN™


**Healthy Active Living**  
An initiative of the American Academy of Pediatrics


**Para una Vida Saludable y Activa**

Nombre \_\_\_\_\_ Fecha \_\_\_\_\_

**Ideas para una Vida Saludable y Activa**

**5** Come por lo menos 5 frutas y vegetales al día.

**2** Limita el tiempo que pasas frente a una pantalla (por ejemplo, televisión, video juegos, computadora) a 2 horas o menos al día.

**1** Haz 1 hora o más de actividad física al día.

**0** Reduce la cantidad de bebidas azucaradas que tomas. Reemplázalas por agua y leche baja en grasa.

**Mis metas (escoge una meta en la cual trabajarás primero)**

☐ Come \_\_\_\_\_ frutas y vegetales al día.

☐ Haz \_\_\_\_\_ minutos de actividad física al día.

☐ Reduce el tiempo frente a una pantalla a \_\_\_\_\_ al día.


☐ Reduce el número de bebidas azucaradas a \_\_\_\_\_ al día.

Firma del paciente o del padre/custodio \_\_\_\_\_

Firma del doctor \_\_\_\_\_

De parte de tu médico


**American Academy of Pediatrics**  
DEDICATED TO THE HEALTH OF ALL CHILDREN™

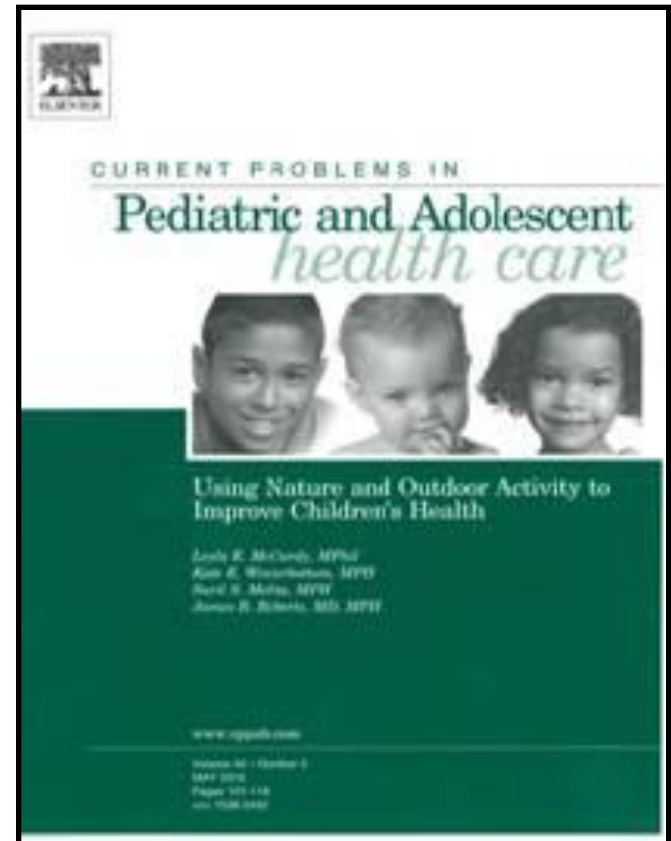

**Healthy Active Living**  
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# Review Article



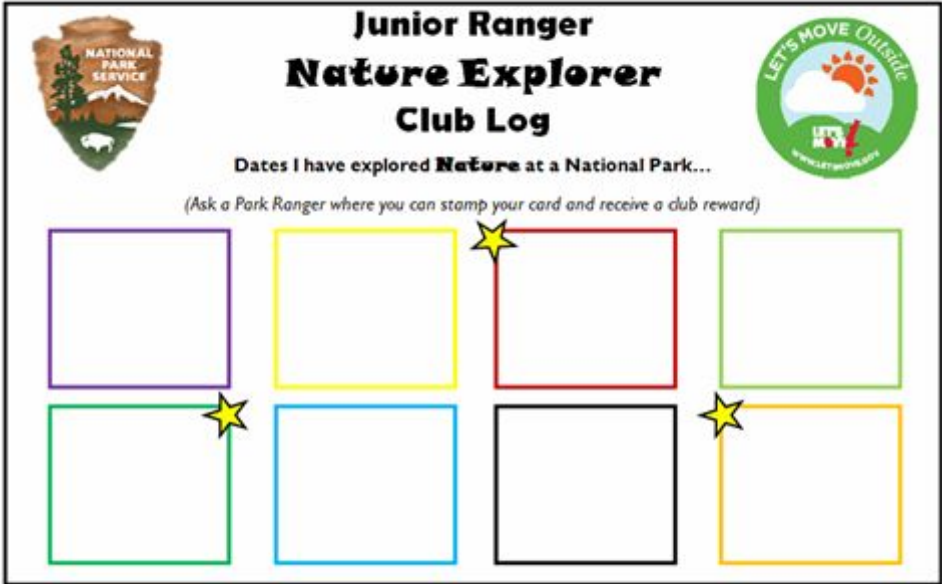
Using Nature and  
Outdoor Activity to  
Improve Children's  
Health--McCurdy,  
Winterbottom,  
Mehta, Roberts.  
*Current Problems in  
Pediatric and  
Adolescent Health  
Care*  
2010;5:102-117.







# Nature Sites

- Tracking Nature Prescriptions
- Club Card & Incentives Program





**Junior Ranger  
Nature Explorer  
Club Log**

Dates I have explored **Nature** at a National Park...

*(Ask a Park Ranger where you can stamp your card and receive a club reward)*



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National Environmental  
Education Foundation

Knowledge to live by



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