Three Ways Nature and Outdoor Time Improve Your Child’s Sleep
A Guide for Parents and Caregivers

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Green Time for Sleep Time
Many U.S. parents are surprised to learn that their children suffer from persistent sleep deprivation – getting as much as two hours less sleep per day than recommended. There are numerous reasons including: busy schedules, addiction to television and electronic games and lack of public knowledge about the amount of sleep kids really need. But one reason for this chronic sleep deprivation comes from a new and growing problem: a nearly complete lack of regular outdoor play time. What is the connection? In addition to getting kids temporarily away from the eye-popping stimulation of electronic media, there are three important ways that building some outdoor time into a child’s schedule will help him or her get a better night’s sleep, and all the physical, emotional and cognitive benefits that brings. They are exposure to natural light, the calming and curing effect of time in natural settings and the enhanced exercise levels that can be achieved by outdoor, as compared to indoor, play.

We are not suggesting that children make major lifestyle changes and start living in the woods, forsaking all electronic media. In this report, the reader will see there are simple and guilt free ways parents can help their kids achieve a more balanced life with some outdoor play time and a better night’s sleep. It is lack of balance that is the main problem. Because today’s children are spending nearly all of their time indoors, they suffer from loss of fitness, increased obesity, poor eyesight, greater isolation and poor social skills. The National Wildlife Federation also sees a long term environmental effect as the indoor childhood phenomenon is stifling a love of nature and wildlife in the next generation. But there is even more to the story. Recent studies show that this new, electronically-driven, indoor childhood is contributing to lack of sleep.

In a nutshell, young children and teens are losing from 10 to 14 hours of sleep per week, which is considerably more of a deficit than children 25 years ago. It might be easy to claim this is primarily due to busy school and activity schedules, but that would be only a small part of the overall reason. The reality is American children are too connected to electronic entertainment media and “screen time.” Today’s children 8 to 18 years old spend an average of 7 hours and 38 minutes per day staring at electronic screens according to a 2010 study by the Kaiser Family Foundation. Kids are watching 4 hours of television per day and playing several hours of video games on the computer. Children of all ages are over-stimulated and staying up later. Older children are also losing sleep to constant cell phone calling and texting, sometimes in the middle of the night.

There is no single solution to childhood sleep deprivation, but a part of having kids who are well rested and able to face their daily challenges involves trading some of their “screen time” for more “green time.” In this report we provide some guidelines, suggestions and resources for parents on how to get started. More time in natural settings can help a child get fresh air, be healthier, less anxious and depressed, feel calmer and more productive and, importantly, get a higher quality night’s sleep.
Background:  
The Extent of Sleep Deprivation in U.S. Children

As a parent, one can hardly watch the news without seeing a report on a new problem that threatens the health of children. The parent’s “things-to-worry-about” list never seems to end. But, with sleep deprivation, the solutions can be as easy as slowing down the schedule, giving the kid a break and arranging for some outdoor play.

With sleep deprivation, the solutions can be as easy as slowing down the schedule, giving the kid a break and arranging for some outdoor play. The goal is an hour per day for kids. But if that is too hard to work into the schedule, parents can relax, be flexible, get help from schools and day care centers, and make more of weekend and summer vacation time.

Teenagers have the worst sleep problems. The average teen needs 9 to 9.5 hours of nightly sleep according to the American Sleep Disorders Association. But most teens are only getting about 7 to 7.5 hours on weeknights. The National Sleep Foundation now estimates that 50% of teens are seriously sleep deprived. A two-hour shortfall per night means that a teen will build up 10 to 14 hours of sleep deficit every week. This affects his or her growth and ability to think and perform well in school, can cause anxiety and depression, and contributes to health problems later in life, including obesity.

Younger children are not doing much better. They need even more sleep than teens and face many of the same problems. There are several key reasons for this trend in American society, including busy schedules, lack of exercise, and, more recently, our children’s love affair with electronic gadgets. Too much television, video gaming, computer time, and even text messaging right up to and including bed time can cut into sleep time in a big way. Research shows this is, in fact, harming their ability to sleep (Medical Daily, 2010). The National Sleep Foundation also finds that nearly half of all school children now have televisions in their bedroom.

Parents, educators and pediatricians are becoming more adept at addressing sleep deprivation by creating regular go-to-bed routines, removing televisions from the bedroom, putting cell phones out of reach after a certain hour and more. But there is more that can be easily done to create happy, well-developed kids.
Screen Time Has Replaced Green Time

Parents generally know their children spend more time watching television and playing video games and less time playing outdoors than they did as kids. While they intuitively know this is not the best thing for children, parents are often uncomfortable with sending them outdoors to play. Think how different this is from the past. Today’s average adult spent hours each day, particularly during school vacation time, playing outdoors with other kids. That same adult may have spent some time watching television or lounging on the sofa, but regular active and creative outdoor play was the norm. The benefits of such regular outdoor activity for a growing child included good physical development, strong heart and lung health, creativity, social skills and more.

But, today, American childhood is largely an indoor experience. As noted above, the average U.S. child (ages 8 to 18) spends nearly eight hours per day watching TV, playing video games and using other electronic media. This leaves little time for outdoor play. We are not suggesting that parents try to cut their children off completely from television or video games. Ours is the simple suggestion that kids of all ages need more active outdoor time in natural settings.

How much? National Wildlife Federation recommends that children have a daily “green” hour. The Centers for Disease Control (CDC) and most health, physical fitness and recreational organizations recommend children have a more balanced life and get at least an hour per day of physical activity (CDC, 2011). They conclude that even with participation in organized sports programs, children need an hour per day of active play time to improve lung and heart health, build muscle and burn up some calories. The American Academy of

<table>
<thead>
<tr>
<th>Child’s Age</th>
<th>Recommended Hours of Sleep</th>
<th>In Reality</th>
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<tbody>
<tr>
<td>4-12 Months Old</td>
<td>11 - 15 hours per day</td>
<td>most infants get only about 12 hours sleep</td>
</tr>
<tr>
<td>1-3 Years Old</td>
<td>12 - 14 hours per day</td>
<td>toddlers typically get only about 10 hours</td>
</tr>
<tr>
<td>3-6 Years Old</td>
<td>10 - 12 hours per day</td>
<td>these children usually get less than 10 hours</td>
</tr>
<tr>
<td>7-12 Years Old</td>
<td>10 - 11 hours per day</td>
<td>the average for this age group is only about 9</td>
</tr>
<tr>
<td>12-18 Years Old</td>
<td>9 - 10 hours per day</td>
<td>most are averaging 7.5 hours</td>
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WebMD Health and Parenting Guide offers sleep guidelines that parents may find useful and even surprising:
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*Pediatrics* carries this further and says that children need this hour per day to be unstructured “down time,” as compared to some highly organized activity (Ginsburg, 2007). We should let children play, make up their own games, engage one another in fun activities and be carefree for an hour or so each day. The connections between green time outdoors and improved sleep are becoming clearer to the experts but parents do not always see the link or recognize the signs.

**Quick guide to spotting a sleep deprived child offered by Parenting Science:**

Parents need to remember that children are bad judges of their own need for sleep. One study by Dement and Vaughan in 1999 found that children insisted they were not sleepy even when they had only had four hours of sleep at night (Dewer, 2008).

**Kids with sleep deficits:**

- Are harder to awaken in the morning
- Have greater difficulty concentrating on tasks
- Take inadvertent naps
- Have slow reaction times
- Experience unusual episodes of hyperactivity
- Often engage in defiant behavior

Sleep deprivation may also make children more moody overall. A study of healthy elementary school students found more intense emotionality were associated with sleep problems (El Sheikh and Buckhalt, 2005). Researchers monitored kids’ sleep with wrist actigraphs (which can detect the physiological signs of sleep) and parental reports. They found that the most emotional children in the test group got the least sleep and had the highest number of night awakenings.

**Even with participation in organized sports programs, children need an hour per day of active play time to improve lung and heart health, build muscle and burn up some calories.**
The Three Ways Outdoor Time Improves Your Child’s Sleep

It is hard to think about children engaged in free play on a regular basis and not think of the outdoors. Outdoor play offers children more space to move around and has other benefits for their health and well being. It can also enhance a child’s ability to get a good night’s sleep. Some reasons outdoor time contributes to better sleep are as follows:

1. Sleep-inducing natural light

There is a significant difference between indoor and outdoor lighting. Outdoor lighting is much brighter and covers a broader spectrum of light. Exposure to such light has been documented to improve sleep quality because it helps to regulate the human body’s internal “sleep clock.” Regular doses of bright natural light also help children stay more alert during the day, elevate their moods and make it easier to sleep at night. One recent study by the Rensselaer Polytechnic Institute’s Lighting Research Center (LRC) documents that children who get exposure to outdoor light in the morning (as compared to staying indoors) actually set their body clock for a better night’s sleep (Rensselaer, 2010).

Many parents have heard of the condition known as seasonal affective disorder (SAD) and some experience it personally in the darker winter months (PubMed, 2011). Inadequate exposure to bright, broad spectrum light, which is more likely to occur in the winter, has been consistently linked to depression. Light therapy, offered by more time outdoors or special high intensity indoor lamps, has been shown to improve overall sleep quality and mood. In many respects, by spending nearly all of their waking time indoors, American children can experience something like SAD symptoms even during the peak of summer. The lighting from television and computer screens does not suffice. To break the cycle, morning and midday outdoor light exposure is best. It is the most intense. The right combination of exercise and exposure to bright daylight works synergistically to regulate the body’s sleep/wake cycle.

There is also evidence that the wrong light can actually damage your health. The University of Connecticut has been finding that increasing use of artificial lighting during the nighttime hours might be disrupting people’s circadian (sleep cycle) rhythms, possibly by suppressing melatonin production. Melatonin is an enzyme produced by the body at night and is known to help sleep and may also prevent cancers. This argues for getting the kids away from the TV and computer earlier in the evening and off to bed sooner. With a body clock properly set from some earlier outdoor play, they are more likely to drift off without any problem.
2. The soothing dimensions of more time in nature

Many people take a walk in the woods or through a park when they are feeling down or stressed. There is something quite soothing about this experience. A body of research shows that viewing vegetation and nature greatly improves the natural healing process. In fact, it is increasingly used by hospitals as part of patient recovery (Ulrich, 2002). But how does exposure to nature and natural settings help sleep?

Nature has a way of comforting children. It can take away stress and be a haven for kids who are otherwise feeling the pressures of school, family and social demands. Nature time can help a child to be more resilient in handling daily expectations (Stephens, 1999). It helps neurotypical children and can have a dramatic effect on children with special needs.

Research at the University of Illinois has found that children who suffer from attention deficit hyperactivity disorder (ADHD) get significant relief from their symptoms and are able to concentrate better if they spend some time in a park or similar natural setting (Faber Taylor and Kuo, 2010). In their study published in the American Journal of Public Health, the Illinois research team had parents of 322 ADHD boys and 84 ADHD girls in all parts of the United States keep journals about their children’s weekend and after-school activities and symptoms. After the children spent time in natural settings, they were calmer and better able to concentrate. They had less trouble completing tasks and following directions. Parents also reported these children slept better at night if the day included time in nature.

Other research shows how nature scenes actually change brain wave patterns in the people viewing them and produce a meditation-like wave profile (Hunter, 2010). Study participants were shown images of tranquil beach scenes and then non-tranquil motorway scenes while they listened to the same (white noise) sound. Brain scanning that measures brain activity showed that “the natural, tranquil scenes caused different brain areas to become ‘connected’ with one another—indicating that these brain regions were working in sync. However, the non-tranquil motorway scenes disrupted connections within the brain.

Green environments may also have important cognitive benefits. In one study, teenage girls with green, natural views outside their bedroom windows performed better on tests of concentration than those with less natural views. In another study, green home surroundings (independent of socioeconomic status) were linked to children being more resilient to stress and adversity (Rogers, 2009). Even pictures of green spaces have been found to have a beneficial effect. Adults shown pictures of nature while they were exercising had lower blood pressure and better mood than when they exercised without these pictures (Pretty, 2005).
Outdoor exercise is better for children than exercising indoors

Exercise can release soothing endorphins into the blood stream and can help with the production of melatonin. As a result, many people find that regular exercise significantly improves sleep quality. A common recommendation for treating insomnia is daily (or almost daily) exercise for at least 30 minutes.

Many of America’s children get some amount of exercise through school physical education programs or through organized sports, but too many of our kids are sedentary and obesity rates have nearly tripled in the past 25 years. As noted above, the Centers for Disease Control recommends that children and adolescents should engage in 60 minutes or more of physical activity each day. This does not have to be done all at once.

A 2009 report from Leeds University in the United Kingdom documents much of the research available on tackling obesity and child health. In addition to looking at nutrition and other subjects, the report examines physical activity and explains some significant findings on how children are more active when playing outdoors (Rudolf, 2009). It suggests that “indoor space often constrains children’s gross motor movements and allows less opportunity for exploration.” It finds that outdoor play encourages activities such as climbing, jumping, running and tumbling that promote muscle fitness and flexibility. One study (Brown, 2009) showed that moderate to vigorous physical activity in American child care settings increased from 1% of time spent indoors to as much as 11% of outdoors time. During the time that outdoor play was child led, the amount of time further increased to 17%.

Studies show that walking and playing provide older children with more physical activity than any other activities (Mackett, 2004). Much of the literature has focused on the relative benefits of different forms of outdoor play and has concluded that green open settings are more beneficial than play in playgrounds.

In 2004 a study in Norway compared play in equipped playgrounds by children aged 5 to 7 years with play in outdoor “open environments.” Children who played in a natural outdoor environment had significantly better motor fitness, balance and coordination than their peers who played in playgrounds (Fjortoft, 2004). Further studies with preschool children in Norway and Sweden found that children who played in natural environments (among trees, rocks and uneven topography) showed greater motor fitness gains over a year. These findings are reflected in a systematic review that examined associations between the physical environment and physical activity in children. The review concluded that children’s participation in physical activity was linked to the provision of publicly provided recreational settings.
A Sleep Improvement Guide for Parents and Caregivers

There are a number of guides and tools available to parents who want their children to get a better night’s sleep. They emphasize diet, bedtime routines, toning down late-night stimulation, communication and other techniques. Parents Magazine offers a solid check list of these suggestions online.

There are also many helpful ideas and tools for helping your child get better sleep through more exposure to the outdoors and nature.

Here is a list of practical suggestions:

**Build outdoor time into the mindset**
No need for parents or caregivers to make this a heavy-duty “to do” added to an already long list. It certainly doesn’t have to be all or nothing. Getting kids to engage in more outdoor time can include occasional walks to school, help with home gardening, a surprise picnic dinner, and any of a thousand small and even convenient outings. The main idea is to get them a dose of nature, natural light and activity.

**Think morning time**
A little time outdoors in the morning will help to set a child’s sleep clock for the rest of the day and night. Walks to school or morning activities on weekends and summer days can make a significant sleep quality difference. “Walking School Buses” are a great way to spend time with your child and get some exercise.

**Look at your school’s recess schedule**
Parents can talk to principals and teachers about the value of having outdoor morning recess for children. Many schools have actually been cutting out recess and pushing for more classroom academic time. But some studies show that lack of routine outdoor time and exercise can hurt a child’s academic performance and ability to focus on assignments.

**Day care**
Parents can also check in with their day care provider to suggest that some daily outdoor time be built into the schedule. Many centers do this already but others need to be more mindful of outdoor play time.

**After-school play dates**
Parents are often apprehensive about simply sending their children out to roam the neighborhood. They are concerned that the children might come to harm through mishaps, traffic dangers or the predatory intentions of strangers. A simple remedy for this is to arrange joint outdoor time with other parents and children. Or parents can rotate and take turns being an outdoor-time supervisor on the block or in the neighborhood.

**Kid and nature-friendly backyards**
It doesn’t take much to make the yard more fun for kids – some bird feeders, a garden, play equipment, outdoor toys, and more.

**Weekend outings**
If the weekdays are too crammed with work, sport
practices, dance lessons, tutoring, and other demands that make it hard for parents to get the kids outdoors, try using the weekends to make up some lost ground.

Find wonderful “nature” places
National Wildlife Federation offers a terrific, free online tool and map for finding great nature places and parks to visit and events to join. NWF’s NatureFind puts thousands of places and events at your fingertips. All you need is your zip code.

Find outdoor activities
NWF also has a great list of fun activities for families and children on their Be Out There website and Activity Finder search tool.

Outdoor adventures
A couple of times a year consider taking the kids on a more extensive outdoor adventure such as canoe trip, an overnight campout or a challenging hike. In addition to helping a child experience the outdoors, such activities also help a child learn more about the natural world and make a connection to wildlife and the environment.

Conclusion
In a world of hyperactivity, stress, electronic music, 24/7 television programming, interactive video games, texting and other types of e-stimulation, it is good to know that children can receive so many health and sleep benefits from spending fun time outdoors. It is especially good to know how such outdoor time heals the body, mind and soul. Regular outdoor time puts children’s minds at rest. And a rested mind is the first step towards erasing your child’s sleep deficit.

Visit www.BeOutThere.org for more ideas and inspirations for outdoor play and a happier bed time.
Sources:


Kaiser Family Foundation, Generation M2, Media in the Lives of 8 to 18 Year Olds, Menlo Park, California, Jan 2010
There’s a reason they call it the great outdoors...

www.BeOutThere.org