

Improving Children's Health through Play: Exploring Issues and Recommendations

A collaboration between the Alliance
for Childhood and the US Play Coalition

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A partnership to promote the VALUE OF PLAY throughout life

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Introduction

There is a growing body of research that shows that play contributes greatly to children’s healthy development. In an extensive review of play research, Jeffrey Trawick-Smith of Eastern Connecticut State University, concludes that:

Decades of research have shown that play is an important mediator in the physical, social, cognitive, and language development of young children. In spite of this, play faces threats from many directions in modern American life.¹

Researchers and others focusing on play agree that children in the U.S. today have fewer opportunities to engage in play than did previous generations.² This leads to a situation known as “play deprivation” which is associated with a wide range of physical and emotional problems.

Pediatricians Ken Ginsburg and Regina Miltner, authors of the American Academy of Pediatrics’ position papers on play, express special concern for children of poverty who are growing up with far too little opportunity to play freely outdoors. However, their concerns extend to all children, as indicated in the following statement:

[E]ven those children who are fortunate enough to have abundant available resources and who live in relative peace may not be receiving the full benefits of play. Many of these children are being raised in an increasingly hurried and pressured style that may limit the protective benefits they would gain from child-driven play. Because every child deserves the opportunity to develop to their unique potential, child advocates must consider all factors that interfere with optimal development and press for circumstances that allow each child to fully reap the advantages associated with play.³

Why is play such a potent element of child development? Jaak Panksepp, a leading researcher in the field at the University of Washington, emphasizes that play contributes greatly to healthy brain development. He points out that play is one of the primary processes in our lower subcortical brain that helps us “anticipate and respond to situations that promote or threaten our survival.” Play also supports the development of the more sophisticated parts of the brain, which are necessary for higher forms of cognition and the self-regulation of our emotions.⁴

In an NPR interview, Panksepp concludes that, “The function of play is to build pro-social brains, social brains that know how to interact with others in positive ways.” In the same interview, Sergio Pellis, a researcher at the University of Lethbridge in Alberta, Canada, speaks of the important role of play in cognitive development: “An added bonus is that the skills associated with play ultimately lead to better grades. In one study, researchers found that the best predictor of academic performance in eighth grade was a child’s social skills in third grade.” He points to recess play as an important contributor to social skills as well as academic achievement: “Countries where they actually have more recess tend to have higher academic performance than countries where recess is less.”⁵

A study, conducted by Charles Hillman of Northeastern University, illustrates the benefits of play by linking physical play with brain health and development. During the study, which began during his time at the University of Illinois, 110 children were enrolled in an afterschool program that centered on “wild, childish fun,” and a control group of 110 were put on a wait list for the program but did not participate in it.

During the two-hour sessions which took place throughout the school year, the children enrolled in the play sessions were active for an average of 70 minutes, interspersing play with rest according to their own choices. Pedometers were used, which indicated that children ran about two miles each day during these playtimes. Age ranges of participating children were 8- and 9-years-old.

This group was of particular interest to the researchers because previous studies had determined that at that age, children typically experience a leap in their brain's so-called executive functioning, which is the ability to impose order on your thinking. Executive functions help to control mental multitasking, maintain concentration, and inhibit inappropriate responses to mental stimuli. Children whose executive functions are stunted tend to have academic problems in school, while children with well-developed executive functions usually do well.⁶

At the end of the program, both groups returned to the university to repeat physical and cognitive tests, and the results were significant.

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As would have been expected, the children in the exercise group were now more physically fit than they had been before, while children in the control group were not. The active children also had lost body fat, although changes in weight and body composition were not the focus of this study. ... More important, the children in the exercise group also displayed substantial improvements in their scores on each of the computer-based tests of executive function. They were better at "attentional inhibition," which is the ability to block out irrelevant information and concentrate on the task at hand, than they had been at the start of the program.

Tellingly, the children who had attended the most exercise sessions showed the greatest improvements in their cognitive scores. Meanwhile, the children in the control group also raised their test scores, but to a much

smaller extent. In effect, both groups' brains were developing, but the process was more rapid and expansive in the children who ran and played.⁷

A growing body of research points to the benefits of child-initiated play in preventing and treating a number of childhood conditions that are on the rise including obesity, attention-deficit/hyperactivity disorder, anxiety, depression, and weak bone development.

Childhood Obesity

The Centers for Disease Control and Prevention finds that "More than 70 percent of Americans are either overweight or obese, meaning that an unhealthy weight is now the norm. Healthy weight Americans – who have a BMI of less than 25 – are now in the minority."⁸

The American Heart Association reports that about one in three American children and teens is overweight or obese. The rate of obesity in children has more than tripled between 1971 and 2011. The Association describes the level of concern regarding childhood obesity as follows:

With good reason, childhood obesity is now the No. 1 health concern among parents in the United States, topping drug abuse and smoking. Among children today, obesity is causing a broad range of health problems that previously weren't seen until adulthood. These include high blood pressure, type 2 diabetes and elevated blood cholesterol levels. There are also psychological effects: Obese children are more prone to low self-esteem, negative body image and depression.⁹

A sobering statement from former Surgeon General Richard Carmona summarizes the threat of childhood obesity in this way: "Because of the increasing rates of obesity, unhealthy eating habits and physical inactivity, we may see the first generation that will be less healthy and have a shorter life expectancy than their parents."¹⁰

How can childhood obesity be addressed most effectively? For years, the use of a two-pronged approach has been popular – diet and exercise – and this has led to some reduction in childhood obesity. In 2016, the Centers for Disease Control stated:

We are beginning to see some progress reducing childhood obesity in some areas, but more progress is needed. Only by accelerating and sustaining this trend can we reverse the epidemic of childhood

obesity.¹¹

Fortunately, a third element is now being recognized – active, outdoor play. The Obesity Society offers a list of tips to parents, and among them is this suggestion about play: “Encourage free play in young children and provide environments that allow children to play indoors and outdoors.”¹²

In the past, children played for hours each day – a combination of active games such as hopscotch, jump rope and ball games, as well as imaginative outdoor play. School-aged children were independent and creative in organizing their own games, and they did not need expensive equipment or adult direction. A growing number of play advocates today are finding ways to bring such play back into children’s lives in school and outside of school. Many of their stories are told in a new book, *Playing It Up – With loose parts, playpods, and adventure playgrounds*.¹³

Government agencies and non-profit organizations are now looking at the value of play in treating and preventing obesity. An NIH-sponsored, long-term study of how to prevent obesity in young children includes play in its focus and describes its study in an article entitled “Addressing childhood obesity where children live, learn, and play.”¹⁴

Attention-Deficit/Hyperactive Disorder

In 2013, the Centers for Disease Control and Prevention published its first comprehensive report on children’s mental health in the U.S. It notes that between ages 3 and 17, attention-deficit/hyperactive disorder (ADHD) is the most prevalent mental health problem, affecting 6.8% of children. Other problems include behavioral or conduct problems (3.5% of children), anxiety (3.0%), depression (2.1%), and autism spectrum disorders (1.1%).¹⁵

In a scholarly article entitled “Play and ADHD,” researchers Jaak Panksepp and Sheri Six report that brain imaging (MRI’s) showed that children diagnosed with ADHD often have slightly smaller brains, especially in frontal cortical areas involved in executive functions (e.g. impulse control) and coordination of movements. Studies involving humans and animals have found that periods of physical play result in specific neurochemical and dendritic changes in many neurons, especially in those brain areas in which ADHD children are deficient. Therefore, long-term engagement in physical play may be an effective, non-medicinal therapy for reducing some of the disruptive behaviors of ADHD and facilitating brain development in children

diagnosed with the disorder. Six and Panksepp state:

Research into the benefits of play is only just beginning but results suggest that adding ample play opportunities may help improve the success of ADHD treatment, especially in regards to social success, which thus far has been little improved by stimulant or behavioral treatments. We must keep in mind, though, that children with ADHD often have difficulties making and keeping friends, probably due to poor social skills, and their play can often end in aggression and rejection so many play interactions may result in negative rather than positive experiences. One way to minimize the number of negative play outcomes may be to provide children with abundant rough and tumble play experiences that build and refine the social brain during the first few years of children’s lives before any ADHD diagnosis is appropriate. Play, after all, is beneficial for all children, not just children with ADHD. Since play also improves self-control, attention and hyperactivity, it may be that early play could prevent at least some diagnoses of ADHD as children age.¹⁶

Six and Panksepp conclude with concerns about the long-term effects of medication for ADHD on brain development and the need for more targeted research, as well as the use of non-drug interventions such as play:

Indeed, it is best that children have a regular “diet” of play from their earliest years, with enough adult supervision to assure that naughty behaviors can be discouraged, and hence the positive benefits of play can be consolidated into lasting adaptive behavior patterns, characterized by good self-regulation and empathy toward others. As Plato said over two millennia ago: “Our children from their earliest years must take part in all the more lawful forms of play, for if they are not surrounded with such an atmosphere they can never grow up to be well conducted and virtuous citizens.”¹⁷

Anxiety and Depression

A 2017 article in *The New York Times* explores why there is a great increase in teens suffering from severe anxiety. It cites data from the annual survey of students by the American College Health Association which reports that in 2011 50% of students reported “overwhelming anxiety.” In 2016, the number rose to 62%. Another survey has asked incoming college freshmen at UCLA if they felt overwhelmed by all they had to do. The survey began in 1985 when 18% said they did. By 2010, that

number had increased to 29; In 2016 it surged to 41%.¹⁸

Developmental psychologist Peter Gray, professor emeritus of Boston University, authored a book on the value of play called *Free to Learn*¹⁹ in which he describes the rise in mental health problems by pointing to the results of well-respected psychological tests that have been given to children and teens over the past 50 or more years. One example is the Minnesota Multiphasic Personality Inventory for college students and its companion test for high school students which are designed to assess mental disorders. When the test results of over 77,000 students between 1938 and 2007 were evaluated by Jean Twenge of San Diego State University, dramatic increases in anxiety and depression were found. Gray comments, "The results are truly disheartening." About 85% of young people today have scores greater than the average for the same age group in the 1950s.²⁰

In 1938, 1% of students were considered to suffer from depression, based on their responses to the questionnaire. By 2007 the numbers had grown to 6%, and Twenge warns it might be much higher given how many students are now medicated for depression. The medications alleviate the symptoms the questionnaires ask about, but also have their own side effects.²¹

Why are our young people so unhappy? Gray explains: "One thing we know for sure about anxiety and depression is that they correlate strongly with people's sense of control or lack of control over their own lives. Those who believe they are in charge of their own fate are much less likely to become anxious or depressed than those who believe they are victims of circumstances beyond their control."²² Being able to initiate and direct their own play is an important way for children to feel in control of themselves and their environment.

Gray describes a study of happiness in sixth to twelfth graders by Mihaly Csikszentmihalyi and Jeremy Hunter of Claremont Graduate University. They engaged more than 800 students from 33 different schools in 12 different communities in a week-long study, during which the students wore special watches that released a signal at random times throughout the day and evening. Each time, the students recorded what they were doing and their state of happiness. The outcomes were clear: children were happiest when they were out of school conversing or playing with friends and were least happy when in school. Spending time with parents fell in the middle range.²³ In general, the lives of children today are highly structured or filled with media, so that they have little free time to converse and play with friends. More research is needed, but it is very likely that their growing unhappiness is related to this lack of free time

for play.

Weak Bone Development

Weak bone development in childhood has become an additional health concern. According to a 2003 study by the Mayo Clinic, which compared fracture rates in children between 1969-1971 and 1999-2001, the rate among young people had increased 42% over three decades. Among girls it had increased 56%, and among boys, 32%.²⁴

The American Academy of Orthopaedic Surgeons (AAOS) is very concerned about the weak bone strength it is seeing in today's children and has mounted a campaign calling for more physical activity - including play - for children and teens. They point to the sedentary lifestyle of many children, including long hours spent with screens, as contributing to weak bone development during childhood. This, in turn, can lead to increases in osteoporosis and bone fractures in later life. The AAOS explains:

In fact, the more bone mass created during childhood and adolescence, the greater the chance of preventing osteoporosis (brittle and weak bones) and related fractures later in life. As a child grows, bone is made and then constantly reshaped to keep its function. In the process of normal growth, much more bone is made than removed, allowing the skeleton to grow in size and density. Up to 90% of peak bone mass is acquired in girls by age 18 and in boys by age 20, making childhood the absolute best time to invest in bone health through proper nutrition and exercise.²⁵

The International Osteoporosis Foundation (IOF) gives helpful data on the relationship between building bone strength in childhood and loss of bone strength later in life:

In girls, the bone tissue accumulated during the ages of 11 to 13 approximately equals the amount lost during the 30 years following menopause. In fact, it's estimated a 10% increase of peak bone mass in all children reduces the risk of an osteoporotic fracture during adult life by 50%. One study has shown physically active young girls gain about 40% more bone mass than inactive girls of the same age.²⁶

Put simply, the National Institutes for Health (NIH) describe the need for more bone strength in childhood

this way:

Building your children's "bone bank" account is a lot like saving for their education: The more they can put away when they're young, the longer it should last as they get older.²⁷

While diet plays an important role in strong bone growth, physical movement also contributes greatly to it. Outdoor play and other forms of physical movement need to be a regular part of children's lives, and at least 60 minutes a day of physical activity is strongly recommended for children and adolescents by the Centers for Disease Control.²⁸

An online article about children's bone problems by *Parents* magazine points to the lack of calcium in children's diet as one cause, but it also points to the need for more movement as an important element in building strong bones. Regarding outdoor play, it concludes:

To build strong bones, kids need more than calcium; they need daily exercise. As muscles contract during high-intensity activity, the tendons that attach them tug against your child's bones to stimulate growth. Too many kids live sedentary lives these days. According to one study, preschoolers get just half of the 60 minutes of daily exercise recommended by the Centers for Disease Control. Boost your child's activity level by taking him to the park regularly and letting him play outside as often as possible.²⁹

A Solution: Loose parts in play

The Centers for Disease Control, the National Institutes of Health, the American Heart Association, and other leading health organizations recommend play as a vital element for healthy development. They are joined by many psychiatrists, psychologists, pediatricians, and other health professionals who are calling for a return to play.

For example, the position statement on play by the American Occupational Therapy Association states:

Occupational therapy practitioners support, enhance, and defend children's right to play as individuals and as members of their families, peer groups, and communities by promoting recognition of play's crucial role in children's development, health, and well-being...³⁰

With attention shifting toward active play for children, new approaches for successfully fostering such play are arising. While play on fixed equipment encourages climbing, swinging, sliding, etc., research in Australia has found an approach that is even more effective in stimulating physical activity – the use of loose parts in play. These open-ended materials, such as tires, tubes, and cardboard boxes, are used by children in dozens of ways. They are increasingly provided to children during school recess and in after-school programs, first in the U.K. and now in the U.S. and Canada. Loose parts can be used alone or in combination with fixed equipment.³¹

The 2014 Australian study examined ways to increase children's physical activity during school recess in primary schools. Two schools took part in the study of recess activity: a new school that did not yet have any fixed equipment or designated sports areas was compared with another which had sports areas and fixed equipment already in place. The new school was supplied with some typical play items such as balls, hoops, and jump ropes, but it was also supplied with loose parts that included milk crates, pool noodles, buckets, bales of hay, water, sand, and much more. The older school did not utilize loose parts other than sports equipment. In both settings, the amount of movement was measured with pedometers during lunch recess. The study concluded that simple, low-cost loose parts was an effective intervention that led to more physical activity than fixed equipment and sports areas alone. Physical activity gains were measured in steps taken per minute and distance covered per minute.³²

The study's conclusion is well worth noting:

Examining the effects of this school playground intervention over a school year suggested that the introduction of movable/recycled materials can have a significant, long-term positive effect on children's PA [Physical Activity]. The implications from this simple, low-cost intervention provide impetus for schools to consider introducing the concept of a movable/recycled materials intervention on a wider scale within primary school settings.³³

Playpods – storage sheds in schoolyards that are filled with loose parts – can be found in many schools in England³⁴ and a growing number in the U.S.³⁵ This approach has proven very effective in helping children to play physically, socially, and creatively. Since recess staff is already on hand, costs for the loose parts approach is generally affordable to schools. Some basic training for recess staff, however, is very helpful for learning about

the nature of play and how to support children's play without unnecessary interference.

A focus on installing playpods and loose parts in schools for recess and after-school programs could be a huge step in addressing the problem of childhood obesity and its related illnesses, including type 2 diabetes.

Recommendations

Fortunately, child-initiated play is making a comeback. But more rapid, wide-spread progress is needed to avoid additional suffering from play deprivation and to heal children already affected by it. This means that funding support and strategic planning are needed so that local play initiatives can become well-grounded and sustainable. Workshops and trainings are needed for those who are supporting children's play, as well as for health professionals so that they can become strong advocates for play.

Conclusion:

There is growing evidence linking children's play to health, and the absence of play to the increase in physical and mental illnesses. Fortunately, there is a growing public awareness that play is essential to children's health and well-being, and a movement for play is growing across North America. Organizations including the U.S. Play Coalition, the Alliance for Childhood, the North American Adventure Play Association (NAAPA), and many local organizations are advocating for play and creating local play projects.

Now is the time for policy makers, educators, recreation workers, and the health industry – insurance companies, hospitals, health organizations, and health practitioners – to join forces with play advocates. These partnerships are essential to ensure access and opportunities for self-directed play that will strengthen the health and well-being of every child.

To grow and sustain the play movement, financial support is needed for:

- **Trainings for teachers, recreation specialists, outdoor educators, and others on how to support children's play**
- **Acquiring "loose parts" materials and storage sheds**
- **Developing locally-based play projects that are sustainable**
- **Community-wide engagement in play**
- **Workshops and educational materials for professionals and parents to help them advocate for play**

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