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## The Serious Need for Play

**Free, imaginative play is crucial for normal social, emotional and cognitive development. It makes us better adjusted, smarter and less stressed**

By Melinda Wenner

On August 1, 1966, the day psychiatrist Stuart Brown started his assistant professorship at the Baylor College of Medicine in Houston, 25-year-old Charles Whitman climbed to the top of the University of Texas Tower on the Austin campus and shot 46 people. Whitman, an engineering student and a former U.S. Marine sharpshooter, was the last person anyone expected to go on a killing spree. After Brown was assigned as the state's consulting psychiatrist to investigate the incident and later, when he interviewed 26 convicted Texas murderers for a small pilot study, he discovered that most of the killers, including Whitman, shared two things in common: they were from abusive families, and they never played as kids.

Brown did not know which factor was more important. But in the 42 years since, he has interviewed some 6,000 people about their childhoods, and his data suggest that a lack of opportunities for unstructured, imaginative play can keep children from growing into happy, well-adjusted adults. "Free play," as scientists call it, is critical for becoming socially adept, coping with stress and building cognitive skills such as problem solving. Research into animal behavior confirms play's benefits and establishes its evolutionary importance: ultimately, play may provide animals (including humans) with skills that will help them survive and reproduce.

Most psychologists agree that play affords benefits that last through adulthood, but they do not always agree on the extent to which a lack of play harms kids—particularly because, in the past, few children grew up without ample frolicking time. But today free play may be losing its standing as a staple of youth. According to a paper published in 2005 in the *Archives of Pediatrics & Adolescent Medicine*, children's free-play time dropped by a quarter between 1981 and 1997. Concerned about getting their kids into the right colleges, parents are sacrificing playtime for more structured activities. As early as preschool, youngsters' after-school hours are now being filled with music lessons and sports—reducing time for the type of imaginative and rambunctious cavorting that fosters creativity and cooperation.

A handful of studies support Brown's conviction that a play-deprived childhood disrupts normal social, emotional and cognitive development in humans and animals. He and other psychologists worry that limiting free play in kids may result in a generation of anxious,

unhappy and socially maladjusted adults. “The consequence of a life that is seriously play-deprived is serious stuff,” Brown says. But it is never too late to start: play also promotes the continued mental and physical well-being of adults.

Worries over the demise of play began surfacing as far back as 1961, when the International Play Association was founded in Denmark to protect, preserve and promote play as a fundamental right for all children. But the idea became more popular a little over a decade ago, when many more nonprofit foundations—such as the National Institute for Play in Carmel Valley, Calif., started by Brown, and other organizations, including the Alliance for Childhood and the Association for the Study of Play—began forming around the globe to promote the value of play and to raise concerns over its demise.

### **Freedom Counts**

But kids *play* soccer, Scrabble and the sousaphone—so why are experts concerned that these games and more structured activities are eating into free play? Certainly games with rules are fun and sources of learning experiences—they may foster better social skills and group cohesion, for instance, says Anthony D. Pellegrini, an educational psychologist at the University of Minnesota. But, Pellegrini explains, “games have a priori rules—set up in advance and followed. Play, on the other hand, does not have a priori rules, so it affords more creative responses.”

This creative aspect is key because it challenges the developing brain more than following predetermined rules does. In free play, kids use their imagination and try out new activities and roles.

The child initiates and creates free play. It might involve fantasies—such as pretending to be doctors or princesses or playing house—or it might include mock fighting, as when kids (primarily boys) wrestle and tumble with one another for fun, switching roles periodically so that neither of them always wins. And free play is most similar to play seen in the animal kingdom, suggesting that it has important evolutionary roots. Gordon M. Burghardt, author of *The Genesis of Animal Play*, spent 18 years observing animals to learn how to define play: it must be repetitive—an animal that nudges a new object just once is not playing with it—and it must be voluntary and initiated in a relaxed setting. Animals and children do not play when they are undernourished or in stressful situations. Most essential, the activity should not have an obvious function in the context in which it is observed—meaning that it has, essentially, no clear goal.

### **Face Time**

How do these seemingly pointless activities benefit kids? Perhaps most crucially, play appears to help us develop strong social skills. “You don’t become socially competent via teachers telling you how to behave,” Pellegrini says. “You learn those skills by interacting with your peers, learning what’s acceptable, what’s not acceptable.” Children learn to be fair and take turns—they cannot always demand to be the fairy queen, or soon they have no playmates. “They want this thing to keep going, so they’re willing to go the extra mile” to accommodate others’ desires, he explains. Because kids enjoy the activity, they do not give up as easily in the face of frustration as they might on, say, a math problem—which helps them develop persistence and negotiating abilities.

Keeping things friendly requires a fair bit of communication—arguably the most valuable social skill of all. Play that transpires with peers is the most important in this regard. Studies

show that children use more sophisticated language when playing with other children than when playing with adults. In pretend play, for instance, “they have to communicate about something that’s not physically present, so they have to use complicated language in such a way that they can communicate to their peer what it is that they’re trying to say,” Pellegrini explains. For example, kids can’t get away with just asking, “Vanilla or chocolate?” as they hand a friend an imaginary cone. They have to provide contextual clues: “Vanilla or chocolate ice cream: Which one would you like?” Adults, on the other hand, fill in the blanks themselves, making things easier for kids.

If play helps children become socialized, then lack of play should impede social development—and studies suggest that it does. According to a 1997 study of children living in poverty and at high risk of school failure, published by the High/Scope Educational Research Foundation in Ypsilanti, Mich., kids who enrolled in play-oriented preschools are more socially adjusted later in life than are kids who attended play-free preschools where they were constantly instructed by teachers. By age 23, more than one third of kids who had attended instruction-oriented preschools had been arrested for a felony as compared with fewer than one tenth of the kids who had been in play-oriented preschools. And as adults, fewer than 7 percent of the play-oriented preschool attendees had ever been suspended from work, but more than a quarter of the directly instructed kids had.

Animal studies lend support to the idea that play deprivation leads to poor social skills. According to a study published in 1999 in *Behavioural Brain Research*, rats that are kept isolated during the two weeks of development when they most frequently play—the fourth and fifth weeks after birth—are much less socially active when they later encounter other rats as compared with rats that are not isolated during the same two-week period. And a study published in *Developmental Psychobiology* in 2002 revealed that male rats reared in isolation during their youth fail to display normal avoidance behaviors when introduced to dominant male rats that repeatedly attack them. Could play deprivation specifically cause these behavioral problems—or could social isolation in general have been the culprit?

Another study suggests that play promotes neural development in “higher” brain areas involved in emotional reactions and social learning. Scientists reported in 2003 that play fighting releases brain-derived neurotrophic factor (BDNF)—a protein that stimulates the growth of new neurons—in these regions. The researchers allowed 13 control rats to play freely with companions for three and a half days and kept 14 other rats isolated for the same period. On examining the rats’ brains, the researchers found that the cortex, hippocampus, amygdala and pons of the rats that had played contained much higher levels of BDNF than those of the rats that had not. “I think play is the major mechanism whereby higher regions of the brain get socialized,” says Washington State University neuroscientist Jaak Panksepp, who co-authored the study.

### **Stress Relief**

Research suggests that play is also critical for emotional health, possibly because it helps kids work through anxiety and stress. In a 1984 study published in the *Journal of Child Psychology and Psychiatry*, researchers assessed the anxiety levels of 74 three- and four-year-old children on their first day of preschool as indicated by their behavior—whether they pleaded, whined and begged their parents to stay—and how much their palms were sweating. Based on the researchers’ observations, they labeled each child as either anxious or not anxious. They then randomly split the 74 kids into four groups. Half of the kids were escorted to rooms full of toys, where they played either alone or with peers for 15 minutes; the other

half were told to sit at a small table either alone or with peers and listen to a teacher tell a story for 15 minutes.

Afterward, the kids' levels of distress were assessed again. The anxiety levels of the anxious kids who had played had dropped by more than twice as much as compared with the anxious kids who had listened to the story. (The kids who were not anxious to begin with stayed about the same.) Interestingly, those who played alone calmed down more than the ones who played with peers. The researchers speculate that through imaginative play, which is most easily initiated alone, children build fantasies that help them cope with difficult situations.

Animal studies also support the idea that play helps to alleviate stress—a concept known in neuroscience as social buffering. In a study published in 2008, Gettysburg College neuroscientist Stephen Siviy put rats into a chamber by themselves and exposed them to a collar previously worn by a cat, which made them visibly anxious. Later, the chamber was cleaned so it no longer smelled of the cat, the rats were put back in without the cat collar, and the rats immediately became anxious again, probably because they associated the space with the cat. But if Siviy and his colleagues then introduced another rat into the chamber—one that had never been exposed to the cat collar and was not afraid—the two would begin playing by chasing each other, tumbling and pretend fighting. And shortly thereafter, the first rat would relax and become calm, suggesting that play helped the rat to lessen its anxiety.

### **Play to the Head of the Class**

Relieving stress and building social skills may seem to be obvious benefits of play. But research hints at a third, more counterintuitive area of influence: play actually appears to make kids smarter. In a classic study published in *Developmental Psychology* in 1973, researchers divided 90 preschool children into three groups. One group was told to play freely with four common objects—among the choices were a pile of paper towels, a screwdriver, a wooden board and a pile of paper clips. A second set was asked to imitate an experimenter using the four objects in common ways. The last group was told to sit at a table and draw whatever they wanted, without ever seeing the objects. Each scenario lasted 10 minutes. Immediately afterward, the researchers asked the children to come up with ideas for how one of the objects could be used. The kids who had played with the objects named, on average, three times as many nonstandard, creative uses for the objects than the youths in either of the other two groups did, suggesting that play fosters creative thinking.

Play fighting also improves problem solving. According to a paper published by Pellegrini in 1989, the more elementary school boys engaged in rough-housing, the better they scored on a test of social problem solving. During the test, researchers presented kids with five pictures of a child trying to get a toy from a peer and five pictures of a child trying to avoid being reprimanded by his mother. The subjects were then asked to come up with as many possible solutions to each social problem; their score was based on the variety of strategies they mentioned, and children who play-fought regularly tended to score much better.

Pellegrini does question, however, how much cause and effect one can glean from these studies. “What does play do? Is it the vanguard of learning something—so does play precede those sorts of skills—or is it merely practice or consolidation of skills that are already developing?” he asks. Although no one knows, “either way, at some level, it would be beneficial,” he concludes.

Does lack of play, then, impede the development of problem-solving skills? Perhaps, according to animal studies. In a paper published in *Developmental Psychobiology* in 1978, experimenters separated young rats by mesh partitions—they could see, smell and hear other rats but could not play with them—for the 20 days during development when they would have most frequently played. The researchers taught these rats, and a group that had been allowed to play without constraints, to pull a rubber ball out of the way to get a food treat. A few days later they switched the setup so the rats would have to push the same ball to get the treat. The isolated rats took much longer to try new approaches, and thus solve the problem, than did the rats that had played. The authors speculate that through play, animals learn to try new things, and animals that do not play simply do not acquire this same behavioral flexibility.

Playing also appears to help with language development, according to a 2007 study in the *Archives of Pediatrics & Adolescent Medicine*. Researchers at the University of Washington gave a box of toy blocks to children from middle- and low-income families aged 18 months to two and a half years. Parents of these kids, as well as parents of a similar group of kids who had no blocks, kept track of how often the children played. After six months, the kids who had played with blocks scored significantly higher on language tests than the others did. The researchers are not sure, however, whether these improvements resulted from playing with blocks per se—because by playing with blocks, the youngsters were spending less time in unproductive activities such as watching television.

But why might play help kids excel? Animal researchers believe that play serves as a kind of training for the unexpected. “Play is like a kaleidoscope,” says evolutionary biologist Marc Bekoff of the University of Colorado at Boulder, in that it is random and creative. The bottom line, he posits, is that play encourages flexibility and creativity that may, in the future, be advantageous in unexpected situations or new environments. Some child psychologists, such as Tufts University child development expert David Elkind, agree. Play is “a way in which children learn,” Elkind says, “and in the absence of play, children miss learning experiences.”

### **Let Loose**

If play is so crucial, what happens to children who are not playing enough? Ultimately, no one knows—but many psychologists are worried. Because play is somewhat risky—animals that are not alert and watchful are at risk of being attacked by predators—it probably evolved and persists because it confers survival advantages. “If it wasn’t important, it wouldn’t have evolved in its elaborate form,” Bekoff says.

Indeed, evidence indicates that play is evolutionarily quite ancient. Rats that have had their neocortex removed—a large brain region that is involved in higher-order thinking such as conscious thought and decision making—still engage in normal play, which suggests that play motivation comes from the brain stem, a structure that precedes the evolution of mammals. “This means that the core, genetically-provided circuitry for play is situated in very ancient regions of the brain,” explains Panksepp, who led the experiment in 1994.

Of course, many parents today believe they are acting in their kids’ best interests when they swap free play for what they see as valuable learning activities. Some mothers and fathers may also hesitate to let their kids play outside unattended, and they may fret about the possibility of the scrapes and broken bones that sometimes arise during play fighting or rambunctious fantasy play, says Sergio M. Pellis, a behavioral neuroscientist at the University of Lethbridge in Alberta. Although those instincts are natural, protecting kids

“simply defrays those costs to later, when those same children will have difficulty in dealing with an unpredictable, complex world,” Pellis says. “A child who has had a rich exposure to social play experiences is more likely to become an adult who can manage unpredictable social situations.”

Parents should let children be children—not just because it should be fun to be a child but because denying youth’s unfettered joys keeps kids from developing into inquisitive, creative creatures, Elkind warns. “Play has to be reframed and seen not as an opposite to work but rather as a complement,” he says. “Curiosity, imagination and creativity are like muscles: if you don’t use them, you lose them.”

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