

BRAIN SCIENCE PODCAST

With Ginger Campbell, MD

Episode #60

Interview with Dr. Stuart Brown, Author of the Book, *Play: How It Shapes the Brain, Opens the Imagination, and Invigorates the Soul*

Aired August 14, 2009

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INTRODUCTION

Welcome to Episode 60 of the *Brain Science Podcast*. I'm your host, Dr. Ginger Campbell. Today our guest is [Dr. Stuart Brown](#), a retired psychiatrist and the author of the book, [Play: How It Shapes the Brain, Opens the Imagination, and Invigorates the Soul](#). We're going to be talking about why play is essential to our mental health and to our brain's plasticity.

If you are new to the *Brain Science Podcast*, please go ahead and listen to this episode. It does not require any background knowledge or having heard any of the earlier episodes.

I'll be back after the interview to tell you who won the drawing for a copy of Dr. Brown's book, *Play*, and a few other announcements. So, please stay tuned for that.

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INTERVIEW

Dr. Campbell: My guest today is Dr. Stuart Brown. Stuart, it's great to have you on the *Brain Science Podcast* today.

Dr. Brown: It's nice to be here with you, Ginger.

Dr. Campbell: Can we start out by just letting you tell us a little bit about yourself?

Dr. Brown: That would be fine. I'm relatively old, though, so this may take awhile. Actually, since the interest I have now is largely in pursuing what is play behavior—where did it come from, why is it important—I could give you a jump start by saying I got interested in play largely by discovering its absence in a mass murderer way back in 1966, when I was given the opportunity by the governor of Texas to try and figure out why [Charles Whitman](#) had climbed the Texas Tower after killing his wife and mother, and proceeded to kill 14 more people and wound 41—which was then the largest mass murder in the history of the United States.

And in the course of a very detailed investigation what emerged again, and again, and again was that Charles Whitman had had his natural tendencies to play suppressed and beaten out of him by an oppressive, abusive father, and a very, very dysfunctional family situation. So, that got my attention that something was going on in play that might be really significant.

And I subsequently then received a grant and studied a group of young male murderers in the state of Texas, compared them to a matched population and, not necessarily expecting that play would come out of the woodwork in that study, was surprised when it did. Because the murderers' play histories and play

experiences were either abnormal or deprivational, and very different than our comparison and control population.

So, that's what got me launched into an interest in play professionally, which continued in the years I was in clinical practice, and since I have left practice has been the primary passion and vocation of mine.

Dr. Campbell: So, you were a psychiatrist during your years of practice?

Dr. Brown: Yes. I had a full internal medicine residency and was also trained in a psychiatric residency. I was basically an academic psychiatrist with biological interests.

Dr. Campbell: And then, since you've been retired from practice, that's allowed you to give more time to this passion, would you say?

Dr. Brown: Yes. When I decided it was time for me to leave clinical practice I had a period of time where I was just sort of thinking, well what do I really want to do with my life? What is important to me? What do I not understand fully? And play kept coming up.

And so, for the last 20 years I really have had the opportunity to study play in great depth in terms of its evolution in animal play in the wild; and to get to know many of the play scholars and neuroscientists whose work is contributory to understanding play, in the course of that time. And it has been a delightful adventurous journey.

Dr. Campbell: Where does the [National Institute of Play](#) come into the story?

Dr. Brown: Well, it came into the story almost by osmosis. As I got more and more familiar with particularly the evolutionary biology of play, and the significance of play in terms of how it has positive effects on brain development

in both animals and humans, I realized that there was no focus for this anywhere. There were individual, very outstanding scholars who certainly understood play in detail in more depth than I did, but there was no center, either to try and get funding or to bring the information base about play—particularly the science of play—into focus.

And so, after making a PBS series on play, I decided it was time to establish a non-profit institute. And it's still a very modest non-profit, but we've got some of the most marvelous and distinguished advisors on play in the world that have signed on as part of our advisory board. We put on a major symposium last fall on the status of play science. And we're hoping, with decent funding, to continue to foster the science of play, some limited play research, and maybe outgrowths that are a natural byproduct of what we are learning more and more is the essence of play behavior.

Dr. Campbell: So, then in writing your book you're hoping to get this information out to a wider public, I guess.

Dr. Brown: That's correct. It's a popular book. It's not a book that has a lot of footnotes or an extensive bibliography, because it's an effort to begin to have the common public perception—which is that play is trivial—be replaced by a more in-breadth and in-depth understanding of the importance of play behavior, what it is, and why we need to prioritize it as a basic part of human behavior and public health.

Dr. Campbell: In your book on page 13 you said, “We are designed to find fulfillment and creative growth through play.” Would you say that sort of sums up one of the most important ideas of this book?

Dr. Brown: I would certainly say that. I think when you follow the benefits of developmentally appropriate play behavior, beginning really with the joyous eye

contact between mother and infant that is playful, and then watch play as it develops in a healthy safe human, and begin to see its contributions to things like emotional regulation, and the enjoyment of something new and novel, and the capacity to be much more flexible and resilient, that's where—for me at least—I can begin to back up the statement you just read from page 13.

Dr. Campbell: Have you done a lot of work with developmental psychologists?

Dr. Brown: I've done some work with developmental psychologists. I've probably done more work with animal play experts than others because they can objectify particularly the neuroscience of play. And play behavior in animals can ethically be interdicted, or interrupted, or fostered, and the results of that can then be measured. And we don't have those kinds of tools, either ethically or scientifically, yet developed for humans.

Dr. Campbell: Right. We'll come to some of those examples that you have in your book.

Dr. Brown: But the developmental psychologists certainly have made huge contributions to an understanding of the importance of play behavior and its nature—and in particular, people like [Anthony Pellegrini](#), who studies rough and tumble play in detail, and [Brian Sutton Smith](#), who has studied the narratives that are associated with childhood playfulness and pretend stories.

Those are two scholars, for example, who've made huge contributions in the field of play. Pellegrini is a developmental educational psychologist, as is Brian Sutton Smith.

Dr. Campbell: What I wanted to do was break the interview sort of into two parts: First to talk a little bit about why play matters; and then to get into some of the practical, well, what do you do if you realize that your life doesn't have enough play.

Dr. Brown: Fine.

Dr. Campbell: So, can we start out by talking about, well, what is play?

Dr. Brown: It's a very difficult subject to define, because play is preverbal in its origins. It's emotional in much of its content. And describing emotion is often a little bit like describing the smell of paint—it's hard to do.

But having said that, I think it's fair to say that play is something that's done for its own sake, it's voluntary, it's pleasurable, it's something that kind of takes us out of a sense of time. It requires a feeling of being safe—a terrorized or enraged person is not in a position to play.

So, that's some of these qualities that outline play. And most everyone, if they were to go to the beach and see two dogs cavorting, would know that's play. Or if you see kids in a sandbox, or kids cavorting with each other on a playground, it's pretty evident that this is indeed a separate kind of behavior from all others, that we call play.

It's definable, but it's very hard to put the definition into a very simple or specific frame and come up with six kinds of descriptions that prove that this is play. The way that play makes most sense to me is to observe it as its modules have been built up by evolution in animals over time, and then apply those to play behavior in humans. And in so doing you usually get a very solid feeling for what constitutes authentic play behavior.

Dr. Campbell: Two of the things you mentioned in the book that are the ones I guess that would be the least shared with animals—at least not testable—is you talked about freedom from a sense of time, and diminished consciousness of the self. When I read that the first thing I thought was about being in the zone or flow.

Dr. Brown: You've got it.

Dr. Campbell: And then, of course, you said that in the next paragraph in the book.

Dr. Brown: Yes, I think that's very true. You and I are tennis players. You know if you're really conscious of losing or winning a point, very often the flow, the fluidity, the joy of the point that you're playing is lost. But if you have a sense of being one with the ball and you're able to guide that ball where you want to—almost like riding a bike, you're just doing something because you know how to do it—there is a deep intrinsic pleasure with that.

And you're not conscious of yourself. And you are outside of time when you're doing something like that. It's a wonderful, magical opportunity for all human beings to find a very good aspect of being alive and human.

Dr. Campbell: And totally an unforgettable experience.

Dr. Brown: Yes.

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Dr. Campbell: So, why do we play? Does it have a purpose?

Dr. Brown: Well, the paradox about play is that it is apparently purposeless at the time. If the goal of what we're doing is more important than the doing, then it's probably not play. And yet, if you look long-term at what play behavior delivers to animals and humans, it delivers an immense amount of important byproducts that are essential for survival.

Though it appears purposeless at the moment in most elements of play, the long-term outcome—particularly objectified by some of these animal play scholars—is

the development of emotional regulation, social competency, the ability to be flexible with something that is happening that's unexpected, and the capacity to adapt to a changing world. Most of our capacities to do what I've just described well come from a healthy play background and from a continuation of healthy play in the moment or in the present.

Dr. Campbell: Is it significant that humans are one of the few species that continue to play, even as adults?

Dr. Brown: I think it's very significant. There are a few other species that appear to be pretty playful in adulthood, but by all measures human beings are the most playful of all the social species that we know of. And I think that's significant. It has allowed us to adapt—whether we're Eskimos, or people in the jungle, or living on a mountain top, or in the humid rainforest—we've got these immense adaptive capacities as a species. And a good deal of that adaptive capacity is learned through our capacity to play.

Dr. Campbell: You mentioned in your book that there is actual evidence that play helps to create new neural connections, and to test them. So, to me that tells us that play is directly related to neuroplasticity.

Dr. Brown: Well, I think it is. There may be some other elements that foster neuroplasticity—that our mutual friend [John Ratey](#) can talk about—through hard exercise. But the people who study in depth rat play—which is a very specific, and measurable, and joyful kind of an observation when you see rats engaging in play—when they measure the direct effects of that play on brain function, the executive portion of the brain of rats is enlarged. And the brain-derived neurotrophic factor that's an important element in the development of new connections in the prefrontal cortex is enhanced specifically by play.

And it appears that in most animals—primates as well as rats—that the hippocampus, the memory centers, are also enlarged during play. And even beyond that, really good animal studies are demonstrating that rough and tumble play, which looks almost like a play fight or a fight, actually lowers stress hormones, which we know also helps enhance neuroplasticity. So, it's pretty important behavior for all of us to engage in.

Dr. Campbell: Would you talk a moment about a creature at the other end of the spectrum? I was really struck by the story of the [sea squirt](#).

Dr. Brown: Well, the sea squirt is our oldest relative. The sea squirt is a primitive aquatic organism that in larval form has a tail and a small brain, and it can swim back and forth, find food, and avoid toxic circumstances. And it has the ability to move through time and space, which is sort of what all brains help us do.

But the sea squirt at a certain point in its development generally—not inevitably, but generally—attaches itself to a rock, becomes immobile, becomes sessile, and in that process it undergoes radical changes. And because it doesn't need to move through time and space and can get its nutrients passively, it proceeds to autodigest its own brain; and down the trail of animal complexity it moves backwards instead of forward.

Dr. Campbell: So, since we're learning that birds are a lot smarter than we thought, maybe when we want to insult someone, instead of calling them a birdbrain we should call them a sea squirt.

Dr. Brown: You've got it.

Dr. Campbell: Can you talk a little bit more about what we know about what happens in the brain when we play?

Dr. Brown: This is inferential from being a really seasoned observer of human beings. I've done in-depth interviews of probably 6000-7000 people, some of whom were patients, but many of whom were highly successful creative individuals. And when you examine the perspicacity, the breadth of information, the curiosity, and the, what I would say, innate intelligence, there is almost always a positive correlation between heightened success in problem solving and playfulness.

And if you go into the animal world, as [Sergio Pellis](#) has done for 30 years in his laboratories in Canada, and begin to really in detail take a look at just one form of play—which is rough and tumble play, which can be objectified and quantified—and see what that does for rats, developing and adults, you begin to see that it really crafts the social brain of the rat.

It not only enlarges the brain, but the connections that are made are those that enable the rat to tell friend from foe, to reproduce and mate successfully, to react appropriately to stress and threat, and to be resilient in the face of danger. These are all things that over 30 years Dr. Pellis's lab has been able to demonstrate.

And when they prevent just the rough and tumble play alone, and allow all other kinds of social behavior to take place between the rats, the rats do not have the capacity to tell friend from foe, they don't mate properly, they don't handle stress well. Yet they can forage and survive in terms of getting food, so that some of the primal skills that they have are retained. But play itself is tremendously important to the survival and well-being of the rat.

And parenthetically, of all young murderers that I studied, none engaged in normal rough and tumble play. So, I find this striking, and a bit of a hard sell for people who think of play as being trivial. But there's some good science that's backing this up, as well as solid clinical observation.

Dr. Campbell: Could you talk a little bit about [Marian Diamond's](#) work in this regard?

Dr. Brown: Sure. Marian Diamond is a pioneer. Marian Diamond is in her late 80's right now and is still actively teaching at U.C. Berkeley. When she initially got her PhD in anatomy she was interested in enrichment and, in particular, in studying rats and mice. And so she developed a series of experiments that she termed 'enrichment' experiments, because even though they were studying rat play, had she used the word 'play,' as she confided to me, she didn't feel she would have been funded. They would have thought she was a silly woman PhD who, at that time, wouldn't be taken seriously.

So, she termed it 'enrichment'. And as an anatomist she was able to quantify that things like toys and friends and activity produce very, very much smarter and healthier rats than those who did not engage in those enrichment experiments. And she had many twists and turns in those experiments. Her scientific writings are prodigious and very convincing, and she is lionized by lots in the research world as a pioneer in the study of enrichment environments, play environments, and learning and play.

Dr. Campbell: But unfortunately the results of her work have tended to be somewhat misrepresented, just because of the fact that she had to call it enrichment instead of play?

Dr. Brown: I went to see her a couple years ago at her lab, and then she has been down to the Institute for Play a couple of times, so we've had a chance to talk in some depth. And she really knew that what was going on was rat play, but it was also enrichment. And so, she felt that she had no choice, because funding was, and still is, essentially unavailable to study animal play exhaustively, because it isn't taken seriously.

Cancer, and heart disease, and a bunch of other human conditions that are felt to be more significant and more important than play are funded, and play has not been. So, in order for her to gain access to funding she had no choice but to follow a very productive line, but to not necessarily call it play behavior.

Dr. Campbell: Yes. Did you say when you were describing her work that there is actually friendship involved with these rats?

Dr. Brown: She said friends, and toys, and exercise are necessary. She did a bunch of studies where she would put a glass plate between same-age playful rats where they couldn't touch, and couldn't wrestle, and couldn't play together. And the differences developmentally between those rats that were able to touch, and play, and be rough enough together, and those who could not, was striking.

And of course the work of Sergio Pellis has come after Marian Diamond's work. And his work with the technology and the biochemistry that's now available—that wasn't available to Marian—has enabled him to be much more precise in just what those play behaviors do for the brain.

She knew that it made for better maze runners, and healthier rats, and longer-lived rats, and that there were more connections being made in the brain. But things like brain-derived neurotrophic factor, and some of the proteins that are put out by genes that are turned on during play, and so on, were not available to her at the height of her laboratory work.

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Dr. Campbell: Stuart, can we talk a little bit more about what appears to be happening in children in terms of doing life simulations, and fostering imagination, and that sort of thing?

Dr. Brown: I think that part of normal play behavior in kids is to engage in fantasy and to have a lot of pretend play, where I'll be the bad guy, you be the good girl; I'll be the villain, the hero. Although pre-programmed media-generated play doesn't tend to foster this kind of free imagination, it still takes place.

And it's an extremely important part of developing a healthy internal narrative—a story about how the world makes sense, and who you are in the world, and who you are becoming. And the ability to sort of transcend some of the dangers, and the big adults that control everything, kids transcend that through their ability to make believe, and to make believe and pretend stories which are largely imaginative in their origin and in their quality.

So, that experience—which becomes more and more sophisticated as a child enters school and gets older—that process of imaginative, pretend-real life play is a very central part of being able to imagine yourself into a more favorable situation as an adult, or to become more flexible and more resilient in stressful circumstances when the requirements for parenthood, or a job, and/or other adult requirements are upon the child. So, preparing for that is really done well and better when a kid has had a very fertile and active imagination that has been fostered by peers and by parents so that they become their own little story-tellers.

Dr. Campbell: So, you think that it would be a key part to then as an adult being able to plan and figure out how to get your life better if you're not happy

where it is, and even when you're in a bad place, imagine that it's not going to be forever.

Dr. Brown: Absolutely. And I think that it also allows one to kind of develop their own humor, their own irony about a world that you can't control but that in part you can make better through your own imagination. And this isn't necessarily escapism or avoidance. It often is problem solving. You're imagining possibilities and exploring those possibilities in an imaginative way which, when they make pretty good sense, you maybe can enact when the opportunity arises.

So, it's really important, I think, for our culture to understand that kids' imagination and the ability for us to adapt to a changing world, or global warming, or economic downturns—and all kinds of shifts and changes are going to confront us—part of the way nature has armed us to deal with this is through childhood play.

Dr. Campbell: In your book you said that play is one of nature's most advanced methods for allowing a complex brain to create itself. Would you expand on that a little?

Dr. Brown: I think if you look at the way—and this is going to be kind of technical—but if you look at the way play impulses enter the brain, they begin as a fundamental kind of force that's there in the human brain stem. This is the part of the brain that houses survival instincts—heartbeat, respiration, sleep and dreams. These are all things that are generated from within this ancient brainstem of ours.

So, play is a fundamental survival instinct, if you will, or force. But it's not a force that is of the same immediate survival requirement as something like respiration or heartbeat. But it nonetheless is housed in that same area. So, from a biologist's point of view it's absolutely essential.

Now, if these impulses that come out of the brainstem go up into higher centers, they interact with emotional centers, which are what are called the limbic system. And then the outside environment, which is appraised through higher centers in the human cortex, also begins to interact. But the primal force that produces alertness, and attachment to the world, and engagement with the world comes from deep within. And it's really important from the brain's standpoint to begin to integrate those primal impulses with the reality that surrounds you.

And as a little kid, part of the way you do that, and part of the way the brain maps itself into the future is through just what I described earlier—these pretend-real experiences—so that you have an ongoing system of memory and mapping that's got an emotional core from play behavior, but has also a reality core from the outside environment. And those two things appear best integrated through play behavior. They're not just linear things that are learned through skill and drills, for example, in school, nor are they things that are learned intrinsically just through emotion. It requires both of those elements of the brain to integrate them.

And so, if you look at what play is doing, it is bringing more and more complicated adaptive maps into harmony with each other, when it is done well and when it is developmentally appropriate. Now, that's a complicated answer, but this is where a lot of the neuroscientists I talk to say that this is a lot like what sleep and dreams do for the brain. Sleep and dreams are not fully understood. Neither is play.

But we do know that dream states, for example, are rehearsals in part, and perhaps dumping circuitry that has not been very useful, and enhancing circuitry that during the day was proved useful and gets more solidified in dream sleep and in sleep. Well, play is conscious, so that it is consciously and willfully controlled. But it is, nonetheless, a fundamental process that is seen in all social mammals, and is a necessity for their well-being and full development.

The architecture of the brain of a rat and of a primate are very similar to ours—same neurotransmitters, similar hormones, we've just got more connections—and we do know from Marian Diamond's work and Sergio Pellis's work that in play behavior those connections are enhanced and shifted and contextualized through play.

Dr. Campbell: I think maybe it might help if we looked at a specific example. One that you talked about in the book that I found very interesting was when you were talking about the difference between a wolf and a Labrador retriever. It sort of relates to how we continue to play and most animals don't.

Dr. Brown: That's a good question, and one I enjoy talking about. If you were to take a look at a wolf from puppyhood to adulthood, and watch that wolf develop, shortly after birth they attach themselves to their mother and they're nursing and they don't explore very much. They're quite similar to what in the dog world would be called a sheep dog.

And a little while later the young wolf pup will begin to explore more fully. But if you throw a ball to those wolf pups at that time, they retrieve it. And they'll retrieve it again and again, which is very similar to a Labrador or Golden retriever that are bred to retrieve.

But then as the wolf grows further it has other characteristics. But as it gets into adulthood it gets into very specialized and specific kinds of behavior. The alpha wolf is the only one that reproduces, and there are pack dynamics. There are specific roles that are assigned to the various wolves that are specialized and fairly inflexible. That's the natural history of wolf behavior.

Now, through special breeding, if you were to take a Labrador puppy and observe it at the same age as the wolf puppy, they look pretty much the same. Their ears are droopy, their nose is short, and they retrieve, retrieve, retrieve. The wolf

grows out of that. The Labrador puppy begins to continue to age, but stays stuck in that immature retriever, highly playful stage, so that a Labrador retriever will come up and be as playful as possible when they're 13 years old, whereas a 13-year-old wolf is pretty much settled into a very specific role.

Now, that condition in the Labrador is called [neoteny](#). It's a retention of immature features into adulthood, and it's characterized by a continuous capacity for play. If you look at the human as a primate, and compare humans with chimpanzees and the other great apes who share much of our genetic endowment, and you watch the developmental sequencing of the chimpanzee, for example, the male chimpanzee as it gets to be a sub-adult takes on a different configuration. Its jaw is lengthened, its brows are heavy, and its behavior is more specialized. Dominance is the important thing—there's a dominance hierarchy among chimpanzees—and they're not very playful.

But if you look at the configuration of the human, we still look like a juvenile chimpanzee in terms of our adult head shape and configuration, and we retain the capacity for play through our entire lifetime. And not only do we retain our capacity for play, we need to play. And our nervous system, as a result of having this sort of “permanent immaturity,” has a huge amount of neuroplasticity that persists through our entire lifespan.

Yes, there's more adaptability and plasticity when we're very young, but compared to other mammals—social mammals and chimpanzees—we're way more flexible than they are, and we're way more playful. So that the consequence, as far as I'm concerned, of not playing as an adult human is like not being true to the design that has brought us to where we are.

Dr. Campbell: Stuart, what makes an activity play? I mean some people will play golf for fun and other people turn it into a serious pursuit, even if they're not playing for money.

Dr. Brown: I think that if you were to look again at issues such as empowerment, competition, domination, those are qualities that certainly human beings possess and that can become a major theme of their lives. For example, I think in the book I talk about going to this beautiful golf course near where I live, called Pebble Beach, and kind of hiding out at the first hole and watching and walking with the golfers.

Over half the golfers that play this gorgeous course are either cursing half-way through or grimly going about the next shot, either because of their personal score or the competitors that they're playing against. Domination and winning is more important than playing the game. I think most of us know people who, whether it's the tennis course, or the golf course, or baseball, or whatever, winning is the issue, not enjoying oneself.

Dr. Campbell: So, would you relate that to the state of mind involved in what makes something play?

Dr. Brown: Sure. If I had to just give one definition of play I'd say it's a state. And that state is characterized as some of the things we've already discussed—apparent purposelessness, voluntary, done for its own sake, taking you out of time, that sort of thing. And when you get out of that state, whether it's playing Monopoly, or tennis, or just reading a book and having a fantasy—all of which can be play—but if there suddenly becomes a kind of a grimness or competitiveness, need to dominate, need to have a highly purposeful outcome, I think that state then gets thwarted and it becomes another state of mind, state of body, state of being.

Dr. Campbell: We're going to take another short break, but we will be right back.

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Dr. Campbell: My guest today is Dr. Stuart Brown, and we're talking about his new book, [Play](#), which argues that play is essential to having a happy and healthy life at any age. Stuart, in this part of the interview I do want to focus on some of the practical information in your book. But there was one thing we hadn't quite gotten to yet before the break that I want to talk about.

You talk in your book about the fact that many different things can actually be play—not just maybe necessarily what we would usually think of when we hear the word 'play'. Could you talk a little bit maybe about how we bring the spirit of play to other activities?

Dr. Brown: Sure. Since we've discussed play, Ginger, as being kind of a state, then there are many, many forms that it takes. And one of the elements I think makes it play is that it fits your own personal temperament. Not everybody's an athlete, or a scholar, or finds joy in the same things.

So that in dividing play up into various patterns, for some people body play—rhythmic play, dancing, hiking, walking, playing tennis or golf—that's their main source of play. But object play—building something, sculpting, digging in the garden, using your hands to tinker—that for some people can be very joyful too. It's not that there's just one type of play that any one of us has to stick with.

But then there's the whole realm of social play, which can involve flirtation, can involve pub talk, can involve the verbal kind of kidding and humor that's a part of a lot of our conversations. It can involve a sense of joint purpose that's done socially which is joyful. So, there's a whole range of social play which is still play. And it could be games.

There are many forms, but I think the important element for the player is to recognize what works for them. What gives them a sense of boost and lift and relief from the travail of the world should be something that they seek out.

Imagination can be a huge component in being playful. I like to hike, but most of the time I'm hiking I'm either a Massai warrior, or I'm a mountain lion in disguise. I have a lot of fun keeping my imagination going. And I think it's that way with lots of folks.

There are some forms of play that would be almost called transformative: A novelist creating a new story. A conductor conducting an orchestra in a new way. Writing music. Doing something that is for the player kind of a creative and transformative sort of activity.

So that play isn't just throwing a ball, or playing tag if you're a kid. It has all of these twists and turns and nuances, all of which can create for the person a varied degree of harmony with their temperament and state of playfulness.

Dr. Campbell: I always feel sort of—I have to admit—a little envious when I read about a great scientist or other creative person who really experiences their work as play. I think of somebody like the great physicist [Richard Feynman](#). He was such a wonderful example of that.

Dr. Brown: Yes, he was a remarkable example of that. And I think I use in the book a professor of mine who ended up getting the Nobel Prize—[Roger Guillemin](#)—who “retired” to the Salk Institute. He took me through his laboratory—a highly intricate, very sophisticated laboratory which was biochemically analyzing some very, very exquisite proteins that were secreted by higher centers of the brain.

And as he went through the description of this he literally was dancing, and was joyful while he was talking about what was going on in these various fractionating apparatus, and what some of his post-docs and graduate students were doing. It was like he was dancing a jig. It was one of the nicest evenings I've ever spent with him, and he was just describing his work. But his work was his play.

Dr. Campbell: So, does play help us stay young?

Dr. Brown: Absolutely.

Dr. Campbell: I love the quote in your book where you say when we stop playing we start dying.

Dr. Brown: Yes, I think [George Bernard Shaw](#) and many other people have used the quote, ‘We don’t stop playing because we grow old; we grow old because we stop playing.’

Dr. Campbell: Yes. Well, I guess we should back up to children again for a few minutes, because you’ve worked with so many people. What do parents need to know about play?

Dr. Brown: I think that the era that I grew up in, for example, my parents, when school was out they didn’t have a clue where I was. They wanted me home when it got dark or time for supper. But we were off with my buddies in the south side of Chicago engaging in our own self-organized, kid-organized play.

What a lot of parents don’t recognize is that that is an important element in childhood development. That adult-organized play, adult-supervised play is really very different and probably a little less helpful developmentally, than is the play that takes place within the culture of the child.

And that doesn’t mean that the parents have to be laissez faire or non-responsible. But it does mean that this idea that every moment has to be occupied with gymnastics, or soccer, or ballet lessons, or tutoring for school, or a play date that’s specifically organized by the parents, that to me is a sad state of our cultural norm that kids are no longer given this level of freedom to sort of work out their own destiny within their own culture, safely buffered by adults but not supervised by adults.

And in many neighborhoods that are perceived as being dangerous, kids can't go out and play like they once did. It's a huge social issue, from my standpoint, that requires concerted efforts on the part of those who understand play, and the education of parents, and the provision of safe and open settings for kids to engage in kid-organized play.

Dr. Campbell: They need to be on their own some in order to really develop social skills, don't they?

Dr. Brown: Sure. And to some degree, to develop empathy. If you're chasing, and punching, and diving, and squealing, and screaming—which is normal rough and tumble play, let's say, in the first and second grades—you learn that if you punch somebody too hard you're going to lose them as a friend, or if you get punched too hard it hurts.

So, the chances are you're going to modify your behavior in order to keep your friendships. Which is what happens in rough and tumble play. You stay friends. It doesn't end up in domination or a fight. So, that's just one form of developmentally appropriate play that adults can't enter into. If they do they ruin it.

You can't have an adult in the middle of a playground, in the middle of tag or a wrestling match between two boys, or girls who are gossiping and developing cliques—which at some level can be a fairly normal form of play, even though there's some pain associated with it for those who are excluded. But the excluded usually learn how to cope and deal with some travail through that very mechanism. Well, if the adults are right in there, they don't learn and they don't solve it on their own.

Dr. Campbell: A lot of times I think parents, or even non-parents, look at things that kids do that seem to rob them of the ability to generate their own

imagination—like all these video games and things—but we don't necessarily appreciate this other aspect that you've just discussed.

Dr. Brown: The perception that I think has occurred largely through media—if it bleeds, it leads—is that we live in a very dangerous society, full of pedophiles and kidnapers and the like; when in fact the actual danger for kids has diminished with time. There's less of that now than 10, 15, 20, or 30 years ago. But that's not the perception. The perception is that it's unsafe to let my kid walk home alone.

Dr. Campbell: I know. It drives me crazy in my neighborhood—which is perfectly safe—when I see somebody sitting at the corner waiting for the school bus. So, they're not even going to let their kid walk from where the school bus drops them off to their house. It just drives me crazy.

Dr. Brown: But, Ginger, that's a social norm across middle-class America, what you're describing. And I think Hara Marano, who wrote the book, [*A Nation of Wimps*](#), talks about how kids have been highjacked by adult anxiety, and that they're let out of their house full of armor if they're going to ride a bike or ride a scooter, so they won't get hurt.

And the need for tort reform is such that a kid can't go to a playground and break their arm. It's the end of the world as far as the city is concerned. They get sued. It's not that I'm against having a playground be reasonably safe. But the statement is made by a number of people that it's better to have broken your arm than to have no soul in the course of your childhood. And play is risky. It's inherently risky. It's partly how we learn to handle risk. Life is risky.

Dr. Campbell: Yes. I broke my arm trying to tightrope walk when I was about 12, and I think I learned something from that misadventure.

Dr. Brown: You bet you learned something. And you learned to handle yourself under circumstances that are hazardous. You certainly see this in the animal world. Looking at it from an evolutionary biologist's point of view, why in the world, if play is so risky, is it more prevalent the smarter the animal and the more adaptable the animal, even though it does increase the risk of damage and death? It obviously would have been eliminated if it wasn't something that was necessary for our long-term survival. There is a paradox. Yes, it's risky. Yes, it's a little unsafe. But, yes, it's necessary.

Dr. Campbell: Normally children still are not really deprived of play, even though it might not be as good as what we got to do when we were young. But what about kids that are really deprived of being able to play? What happens to them?

Dr. Brown: Well, I started this discussion out by talking about my study of Charles Whitman and the murderers. Major play deprivation, particularly when it's associated with physical abuse, is dangerous to society in that those kinds of individuals who have been severely deprived of play and have also experienced personal abuse are often incapable of not being violent.

If there hasn't been abuse and if the play deprivation is severe, you get a constricted, fairly rigid stereotyped kind of person—joyless and often with a smoldering chronic depression when they haven't had play behavior. Because take a look at what play gives us. It's humor, it's entertainment, it's sports, it's reading, it's fantasy, it's imagination. If all those things are out of a life, it's not much of a life.

Dr. Campbell: What about teenagers? Is play important to teenagers?

Dr. Brown: It's important through our whole life cycle. When you get into the hormone surge area of life, at the beginning of that surge there are some different

play patterns that emerge, and they're often more competitive and more aggressive in the case of males. In the case of females there often are behavioral changes where gossip and other kinds of, let's say, social exclusions occur with a little more prevalence.

But it doesn't mean, just because those patterns are changing, that joyful engagement in music, and dance, and all kinds of school projects, and sports, and debates shouldn't occur. It's a more organized time for play, but it's also a time when the individual temperaments come to the fore, and a lot of the innate talents of an adolescent are best honed by what is their own natural proclivity for play.

An athlete is going to go places they usually begin to soar as an adolescent. If a woman is going to become a fashion designer, she often will be really interested and playful with colors, and dress, and form, and artistic things. So, it can be an extremely rich time. I don't know that our educational system in general is very good—particularly at the junior high level—with amalgamating highly playful opportunities with how our curriculum or the social setting is set up.

Dr. Campbell: And I think you also share Dr. Ratey's concern about lack of opportunities for physical activity and how important that is.

Dr. Brown: Oh, I certainly do. And I think that the natural forms of play that occur in elementary school age are highly physical—boys and girls. And if that's thwarted, or if that becomes passe, then the health problems that are associated with sedentarism and, I think, the lack of blown-off energy creates other kinds of problems that Dr. Ratey and I have talked about in the past.

And you probably have talked on this program with him about the necessity for continued hard physical activity, and its association with both academic and personal performance and better health. Those connections are so solid that it's

tragic if a kid does not stay active physically during the course of middle and high school. And a lot of them don't.

Dr. Campbell: In your book you said something in a slightly different context, but I think it applies here too. You said the opposite of play is not work, the opposite of play is depression. It seems like we have an epidemic of depression in our society among adolescents, children, and adults. I can't help but feel that there's a relationship there.

Dr. Brown: Well, a highly playful child or adult is not going to be depressed. It's a signal of good emotional health. And conversely, the lack of play and the downer which that evokes in most of us is smoldering depression. It may not be as serious as a major biologically-driven depression, but it nonetheless is a very real depression. So, work and play, to my thought, should be joined as much at the hip as possible. And the opposite of a playful life is a depressed life.

[music]

Before we hear the rest of Dr. Brown's interview I want to take just a minute to thank those of you who are helping support my work with donations and subscriptions. If you are interested in learning how you can donate, just visit brainsciencepodcast.com and click on the tab labeled 'Donations and Subscriptions' which is at the top of the page.

[music]

Dr. Campbell: Stuart, if play is so important to our work and our creativity, why is it so easy for us to lose it?

Dr. Brown: That's a complicated question. The drive to play does lessen as we mature. The demands of parenthood, for example, are sufficient in our culture, and in most cultures, to mean that the young parent does have to spend an

inordinate amount of time in sustaining the life of a child. It doesn't mean they can't play together, but there often is a lessening of play just biologically. That's just one factor.

A major factor is that since it doesn't require play to survive immediately, a culture can suppress play. And the Judeo-Christian industrial revolution kind of tragic mode of looking at the world tends to demean and lessen the importance of play, so that there's a cultural norm that says, well, a responsible adult can't be doing these superficial things like spending time in fantasy, or taking a half hour off of their work day to just go out there and have a good time. That's irresponsible.

And yet, the evidence is so solid that if you do incorporate healthy play into your life your performance is going to be better, your health is going to be better, your relationships are going to be better. We're living with a cultural stereotype that, as a friend of mine says, what we consider normal is not healthy.

Dr. Campbell: Yes. If someone is listening and they feel like they are play-deficient, I guess they need to read your book. But can you maybe give one suggestion, since we're kind of running out of time?

Dr. Brown: Sure. I think most everybody, unless they were severely abused or deprived as a kid, has really vivid moments in their memory of a play time—a play moment, a play episode, a vacation, a scene—that is pleasurable; genuinely playful. By concentrating in one's mind's eye on that experience and re-experiencing that emotion and building on it—letting yourself spend time experiencing it, building on it and tying that into your current adult life.

Where in the world in my life now could I find something like that, that would give me some of that same joy? Would it be going to a ball game, would it be telling a joke? What is it? What fits me? What is my own temperament, my own

play personality? And when did I lose it, and how can I get it back? Well, that's one of the ways to get it back. And there are others.

Dr. Campbell: Yes. Well, I really appreciate your taking so much time to talk with us today. Is there anything else you'd like to share before we close?

Dr. Brown: Well, I just think that any of your listeners who have access to their school boards, I think it's really important for kids to be able to enjoy playing and learning together. And I think very often No Child Left Behind and diminishing recess is ultimately toxic to the culture. So, that's one thing I don't think we talked about. I would hope parents would either get the book, or get [John Ratey's book](#), and begin to understand the significance of play and get it into public policy.

Dr. Campbell: If listeners want to learn more, where should they go?

Dr. Brown: We've got a reasonably good website for the National Institute for Play, which is www.nationalinstituteforplay.org, or www.nifplay.org. I think my book, [Play: How It Shapes the Brain, Opens the Imagination, and Invigorates the Soul](#), is a beginning point. And there are becoming more and more enlightened organizations.

There's one called [The Association for the Study of Play](#)—TASP—which has some publications. There's an excellent organization called the [Alliance for Childhood](#) which is play-based, which has some publications. For inner city kids there's an organization that used to be called [Sports for Kids](#), and is now called Playworks, that has an excellent website. And the last think I think of is a playground organization that understands play, called [KaBOOM](#).

Dr. Campbell: OK. I'll put links to all of those things up on the Show Notes.

Dr. Brown: Excellent.

Dr. Campbell: Thanks, Stuart. I really enjoyed talking with you today.

Dr. Brown: I enjoyed it too. And keep playing tennis.

[music]

I want to thank Dr. Brown for coming on the *Brain Science Podcast*. There are a couple of important things that I learned from his book. One is the importance of rough and tumble play, and the other is the importance of children playing together. The social aspects of play are extremely important. I definitely encourage everyone to read Dr. Brown's book.

In addition to the links he mentioned, the Show Notes for this episode will include links to several other books that explore the importance of adult play and how to reclaim it. You'll find these at brainsciencepodcast.com. And don't forget that [transcripts](#) are now available for every episode of the *Brain Science Podcast*.

And now for the announcement you've been waiting for. The winner of this month's book drawing is Susan Stinson from Rochester, New York. Susan, you should be receiving a copy of Dr. Brown's book, *Play*, within the next few weeks.

Everyone who donates \$25 or more is automatically entered into the monthly drawing. If you don't win, your name stays in the basket for the next month. If you can't donate but want a chance to win, just send me an email with the words 'brain science podcast book drawing' in the title line. My email address is docartemis@gmail.com.

I'm also happy to announce that our new Facebook fan page is growing steadily. So, if you're on Facebook I hope you will join the fan page and leave feedback on the wall.

I've got some great interviews lined up for the next few months, so I hope if you're not subscribed you'll go into iTunes or go to brainsciencepodcast.com to learn more.

Finally, don't forget to check out my other podcast, *Books and Ideas*. I'm going to be doing a live *Books and Ideas* podcast at this year's [Dragon*Con](#) in Atlanta. So, if you're going to be there I would really like to meet you in person. I will be posting my entire Dragon*Con schedule. Most of the things I'm doing are in the Science Track, and I'll be posting that on my Facebook fan page and also at gingercampbellmd.com.

As always I appreciate your feedback, and also your reviews on iTunes.

Thanks again for listening. I'll be back next month with another episode of the *Brain Science Podcast*.

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