



THE LONG SHADOW

BRUCE PERRY ON THE LINGERING EFFECTS
OF CHILDHOOD TRAUMA

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THE “fight or flight” instinct has served the human species well, helping us respond quickly to threats, but according to child and adolescent psychiatrist and neuroscientist Bruce Perry it can also change our brains for the worse. If the threats we encounter are extreme, persistent, or frequent, we become too sensitized, overreacting to minor challenges and sometimes experiencing symptoms of post-traumatic stress disorder, or PTSD. This is especially true for children, whose still-developing brains may be chronically altered by growing up in abusive environments that Perry calls “the equivalent of a war zone.” Perry says that instead of being offered the sort of meaningful, caring connections they need, children with these experiences are often labeled troublemakers — and later criminals. He advocates passionately for changes in parenting, teaching, policing, and public policy to help traumatized kids.

The second of four children, Perry was born in 1955 in Bismarck, North Dakota. His father was a dentist; his mother, a homemaker. Skinny and asthmatic, Perry joined the track team and says visualization techniques helped him win races and get his asthma under control. He went on to attend Stanford University in California, where he majored in human biology and participated in a seminar about the effects of early life stress on the developing brains of rats. During his first summer home from college, Perry got married and returned to Stanford with his wife in the fall. One night she went missing and was later found brutally murdered. After the funeral Perry didn’t return to school. He spent a lot of time alone, thinking about what had happened. When he went back to Stanford in the spring, the attention he received from other students made him uncomfortable, so he transferred to Amherst College in Massachusetts and entered the neuroscience program. In the wake of his wife’s death he stopped focusing on grades and simply pursued subjects that interested him.

Perry went on to attend Chicago’s Northwestern University, where he earned his MD and a PhD in neuroscience, satisfying his interests in both pure research and applied science. He did his medical residency at Yale University in Connecticut and joined ongoing research efforts to determine why some combat veterans developed PTSD and others didn’t. Perry recalled something he’d learned at Stanford: rats exposed to uncontrollable stressful experiences early in life suffered lasting changes in brain chemistry. He looked at the veterans’ childhoods and found that those with a history of physical or sexual abuse were more likely to have been traumatized by the war.

In 1987, as a child and adolescent psychiatry fellow at the University of Chicago, Perry consulted at Saint Joseph’s Carondelet Child Center, a treatment program for boys with severe behavior disorders. He was shocked to discover that the psychiatrists who diagnosed the boys rarely took into account the children’s histories of abuse and neglect. Perry showed that, if given the structure and stability and nurturing they’d been denied earlier in life, they could improve, sometimes dramatically.

Perry has since served as chief of psychiatry at Texas Children’s Hospital and worked as a consultant and expert witness following tragedies, including such high-profile cases as the

Columbine High School shootings, the Oklahoma City bombing, and the Branch Davidian standoff in Waco, Texas. He currently lives in Houston, where he is a senior fellow at the ChildTrauma Academy (childtrauma.org). He is also an adjunct professor of psychiatry and behavioral sciences at Northwestern’s Feinberg School of Medicine. In addition to writing more than two hundred scientific articles, Perry has co-authored with Maia Szalavitz two books for general audiences: *The Boy Who Was Raised as a Dog: And Other Stories from a Child Psychiatrist’s Notebook* and *Born for Love: Why Empathy Is Essential — and Endangered*.

For this interview I met Perry at his small Houston office, which is decorated with photographs from summer hiking trips he takes with his wife and adult children in the Western Rockies or Canadian mountain ranges. He says that to nurture healthy children and understand what they need, we first have to help them feel safe and connected and allow them time for reflection. He seemed to embody this principle himself: during the two days I interviewed him, he was relaxed, and he never appeared rushed or looked at a watch or device. Though he often spoke about childhood trauma in terms of neurons and brain development, his love for children was obvious. When the conversation turned to the kids he has worked with, I could easily imagine him sprawled out on the carpet with a five-year-old, focused only on the vulnerable human being in front of him.

Supin: What is trauma?

Perry: Despite using that word all the time, the psychiatric field still debates how to define it. Is trauma an external event? Is it the way we experience that event? Is it the long-term changes in emotional and physical functioning that follow the event?

I define trauma as an experience, or pattern of experiences, that impairs the proper functioning of the person’s stress-response system, making it more reactive or sensitive.

Supin: What is the stress-response system?

Perry: We have many stress-response systems. Essentially all the systems in our body can be recruited to respond to some form of stress, and depending upon the nature, timing, and intensity of the challenge or threat, some combination of these responses will be used to help us survive and adapt. Most people are familiar with the “fight or flight” response, which is activated when we perceive a potential threat. Our heart rate and respiration increase, glucose is released for energy, and nonessential feelings like hunger or pain will be ignored — all in preparation to flee or fight. Then, when the threat has passed, those systems return to a baseline equilibrium. These stress-response systems are a dynamic process, constantly monitoring our world and activating and deactivating to allow us to thrive.

Another important aspect of our capacity to adapt is the malleability of the brain. Neural networks tend to change according to how often they are activated, and these changes can make us either more or less functional. If the brain’s stress-response apparatus is activated for prolonged periods, such as in a domestic-violence situation, its equilibrium will change.

Instead of being anxious and fearful only when confronted with a threat, a person might live in a persistent state of fear. For a child, in particular, this has many negative ramifications.

Take a school shooting: Two children in the same classroom might experience basically the same event, but they can have very different long-term responses. One might have some bad dreams and anxiety, but after three months or so those will subside, and the child returns to her baseline. She doesn't forget the event, and even years later she will likely feel upset if she thinks about it, but the event did not fundamentally change her capacity to self-regulate, relate, and reason. She wasn't "traumatized."

Another child's reaction might be much more severe and prolonged: profound anxiety, significant sleep problems, recurring nightmares, and intrusive, disruptive memories of the event itself. This child is experiencing a change in his stress response. The event shifted his baseline in unhealthy ways. He was traumatized.

When a child with a typical equilibrium is traumatized, he is aware of the change and can report his distress to others. But when a child grows up in an environment permeated with chaos or violence, that child perceives this state of hypervigilance and distractibility as the norm. If asked whether he feels anxious, he will say no. We can tell how anxious he is by the way he startles when he hears a sudden noise, by his inability to sit still, and so forth. But to him this is normal. This is his baseline.

Supin: So the difference in baselines explains why one child might recover from a school shooting and another be traumatized by it?

Perry: Many factors influence who we are and how we function. For example, previous prolonged activation of the stress-response system due to living with the unpredictability of poverty might be a factor. So could the type of support the child receives from family and community. The quality of a child's relationships before, during, and after a horrible event influences outcomes tremendously. Children who have experienced attentive, loving parental care since birth and who live in stable, safe homes and communities will fare best.

A child will also respond to an event based on how the adults around her respond. Human emotions are contagious. If a child falls down and scrapes a knee, she will mirror the parent's response to the accident. If the parent is calm, it strengthens the child's stress-response system. If the parent views the situation as threatening, the child will, too. Parents' reactions turn out to be one of the major predictors of whether a child will develop symptoms of post-traumatic stress after a tragedy. Resilient children are made, not born.

Many people believe that children are more resilient than adults, yet the opposite is true. The developing brain is sensitive to experiences both good and bad. The same neurologi-



BRUCE PERRY

cal principles that allow young children to rapidly learn motor skills and language are also at play when it comes to processing stress or trauma. An infant who receives predictable, consistent care develops a neural framework that helps that child think and learn later in life. An infant who is neglected or abused develops a different neural framework.

Supin: Can you explain a little more about how our stress-response systems work?

Perry: All input — feelings of hunger or thirst, loud noises, the sound of someone's voice, some information we learn — first enters the lower, more primitive part of our brains, which determines if this input is familiar or unfamiliar. If the input is familiar, it then travels to a higher, more

evolved part of our brain, where we decide based on memory whether it's good, bad, or neutral. If the input is unfamiliar, the brain's default conclusion is *This can't be good*. Any novelty — even desirable novelty, like learning something new — activates our stress-response system.

Some stress is actually good for us — for example, the stress related to meeting a new person or traveling to a new place. Predictable, controllable, and moderate activation of the stress-response system has been shown to build our capacity to manage challenges. When a child has the opportunity to challenge herself in the presence of supportive adults, it builds resilience. It's the dose, the pattern, and the controllability that determine whether the stress is adaptive or harmful.

Let's say you're a six-year-old boy, and up until now your life has been OK. Mom and Dad split up, and there was some conflict around the divorce, but nothing too horrible. Then all of a sudden Mom has a new boyfriend in the house. That's novel, so it generates moderate stress. At dinner he raises his voice at you; that's unpredictable. He soon starts barking orders at you more frequently. He yells at your mom. He hits you, or he hits your mom. Your stress-response system doesn't have time to return to baseline before another source of stress arrives. You start having anticipatory anxiety about what will happen next. Your baseline level of stress increases; things that would not have bothered you much before now bother you a lot. A harsh tone of voice that may have been mildly upsetting is now overwhelming. If the boyfriend's behavior continues, your stress-response system may start to register any angry tone of voice as threatening. You've become what we call "sensitized."

Supin: Conventional wisdom might suggest that the boy would get used to the angry, violent behavior and be less affected by it over time, but you're saying the opposite is true.

Perry: Exactly. The more our stress-response system is activated in uncontrollable ways, the less able we are to handle even small amounts of stress.

When you are overstressed, you no longer have efficient access to your higher brain functions. By the time you're in a

state of alarm, significant parts of your cortex — the highest-functioning part of your brain — have shut down entirely. This is adaptive if you're confronted by a predator, because you don't want to waste time thinking about how to respond: you want to fight or run away. But to do your best reasoning, you need access to that sophisticated part of your brain. To learn and plan, you need to be in a relatively calm state.

Supin: Let's go back to the six-year-old boy in your example. What happens to him at school?

Perry: The brain is good at generalizing from one kind of experience to another. Most of the time this ability is a gift, but this boy may generalize that all male authority figures who raise their voices are terrifying. This starts a vicious cycle: The boy arrives at school already on heightened alert due to his home situation, and he can't pay attention. The teacher gets frustrated and raises his voice. The child is now even more on red alert. It's impossible for him to concentrate. The rational parts of his brain shut down. Instead he has access only to the parts that process information valuable in threatening situations. He's attuned to the teacher's tone of voice, to whom the teacher is smiling at. He's learning to read nonverbal cues. The calm child will learn the state capitals; the sensitized child will learn who is the teacher's pet.

Supin: Can he recover from that?

Perry: Yes, opportunities for controlled, moderate doses of stress can shift these systems back toward well-regulated functioning. The key is that a moderate challenge for a typical child may be a huge challenge for a sensitized child.

The achievement gap in schools has a lot to do with the child's home and community life. If the family is concerned about not having money for food or rent or a doctor's visit, that creates a pervasive sense of anxiety and unpredictability. The longer the child is in that environment, the worse the vicious cycle at school becomes. Eventually the kid says to himself, "There's something wrong with me. I'm stupid." And he drops out as soon as he can.

Supin: What about the character-building benefits of facing down adversity, of "rising to the challenge"? Is that ever applicable in these situations?

Perry: If you start from a healthy place, adversity can be character building. But if you grow up amid constant adversity, you are less likely to have the flexible and capable stress-response systems you need to face down adversity. Certainly many children do grow up with remarkable gifts and strengths despite their challenges, but when this happens, it's often because there were people in the child's environment who helped create a safe, predictable space for the child at least part of the time.

Supin: Are there instances in which well-intentioned parents protect their children from stress too much?

Perry: Yes, I've seen upper-middle-class children develop anxiety disorders because they had never been given the opportunity to explore the world. They'd been told only, "Don't do this, don't do that, don't get dirty." By the time these children went to preschool, they hadn't learned to tolerate even slight discomforts. They became overwhelmed by the novelty

of preschool and had meltdowns.

Resilience comes from stress. It's important that parents, teachers, and coaches not be afraid of it. Exploring, getting dirty, and falling down help you build resilience and tolerate novelty and discomfort.

Supin: How might we apply this to whole communities?

Perry: First we have to understand that feeling connected to other people is one of our most fundamental needs. We feel safer when we are with kind and familiar people. Tension can arise from being part of a marginalized minority, whether you define that minority status by economics, race, ethnicity, religion, gender identity, sexual preference, or whatever. The marginalized group has a much higher level of baseline stress. It's not a specific traumatic event; it's a continuous sense of disconnection.

Our brain is constantly monitoring our environment to gauge whether or not we belong someplace. If we frequently get feedback that we don't belong — or, worse, overt threats — then our body's systems stay in a constant state of arousal. This increases the risk for diabetes and hypertension and makes learning, reflection, planning, and creative problem-solving harder. Over time it will actually change the physiology of your brain.

For example, for someone who already feels marginalized and is hypervigilant, even a relatively benign interaction, such as a police officer asking for your license, can trigger a volatile reaction. This is true for both the person being stopped and for the cop who's doing the stopping. They both can be sensitized. People in law enforcement should know the principles of stress and trauma. It's the key to understanding why some of their policies and behaviors have a destructive effect.

Supin: Are you aware of any programs to train law-enforcement personnel in these principles?

Perry: I did some work with the FBI after the Branch Davidian standoff in Waco, Texas. [*In 1993 the Federal Bureau of Alcohol, Tobacco, Firearms, the FBI, and the Texas National Guard held the Branch Davidian religious group under siege for fifty-one days, culminating in an explosive clash and eighty-seven deaths. —Ed.*]

Supin: What were you doing, and what did you learn?

Perry: The events at Waco were astoundingly tragic. We brought in a team of people to help with the Branch Davidian children both during and after the standoff.

The Branch Davidians were a highly insular fundamentalist religious group who had sworn absolute allegiance to their charismatic and controlling leader, David Koresh. The group certainly conformed to all academic definitions of a cult. In the first three days of the standoff, twenty-one children were released into the care of the FBI and the Texas Child Protective Services. I got involved because I lived nearby, and someone in the Texas government asked for my assistance. I went to Waco figuring I'd make some recommendations and be back home in a few days. I ended up assembling a team and staying for months.

When I first arrived, I was greeted by an imposing Texas Ranger who was feeling understandably protective of these

children and none too keen about a psychiatrist messing with their heads. In trauma work we routinely track heart rates, because even when traumatized children express no outward stress response, their heart rates are often elevated. I offered the ranger a deal: he could take the pulse of a girl sleeping soundly nearby, and if it was below a hundred, I'd leave. The normal resting heart rate for a child her age is about eighty beats per minute. Her pulse was 160. I stayed, and the ranger and I became close collaborators in helping these kids.

Others wanted the kids to get therapy, but I said no. First let's bring them consistency and predictability. Let's minimize the number of new adults in their lives. Let's settle them into a routine and allow them to build some familiarity with us.

About seven weeks passed from the time the twenty-one children were released until the bloody conclusion of the standoff. I interviewed each child multiple times during that period but was also just with them day in and day out. So I got to know them.

Each evening, after the kids went to bed, the adults would sit together and talk about what we'd seen during the day. We found that each child had about three hours of therapeutic interaction a day, even though none of them received formal therapy. Throughout the day kids would seek out small doses of support. One child might go up to the best adult hugger and get a hug; later that same child might find the funniest adult and get a laugh. The key here is that the children controlled the nature and duration of the interaction. Their heart rates began to go down.

We had a diverse enough group that the children could find exactly what they needed at any particular moment. It reminded me of traditional multigenerational clans, where maybe Mom is good at fixing a hurt, and Grandpa is good at storytelling, and someone else can start a fire, and so on. The community offers a rich array of people to learn and receive support from.

Living with those twenty-one Branch Davidian children changed how I thought about therapeutic work. We offered structure, familiarity, caring — and no therapy. A fifty-minute therapy session may be a part of treating trauma, but ideally it's simply one thread in a much larger web of therapeutic encounters.

My confidence in our approach grew when the Davidians' attorneys insisted that the children be allowed to visit with their parents. During those visits, the parents repeated Koresh's apocalyptic message, warning that we were going to kill them all. And, sure enough, after the visits the kids' heart rates shot back up. As soon as the visits stopped, the children returned to baseline.

Over the years my colleagues and I have honed our ability to identify and educate the adults in a child's family, community, and school who might help provide therapeutic experiences. We teach them about the impact that trauma and adversity have had on a child's functioning. We give them realistic expectations. The most at-risk children are often disconnected from family, school, and community. Reestablishing those connections appears to buffer the effects of trauma. Distributing

caregiving duties among a set of healthy and loving adults is one of the best ways to help isolated, overwhelmed, and incompetent parents. Grandparents, partners, and friends can all shoulder some of the burden.

Supin: What can communities do to support and encourage healthy development?

Perry: A number of years ago Chicago's Cabrini Green public housing added some green space among the high-rise apartment buildings. They put in a better playground. They put in benches where people could sit. No other changes were made or new services offered, but over the next couple of years violent crime in that housing project dropped by 30 percent.

If your living environment increases the probability that you will interact with your neighbor, it makes both of you physically healthier, socially healthier, and less likely to suffer the mental-health issues associated with being isolated and marginalized.

Another set of studies were done of indigenous populations in British Columbia that had suffered the long-term consequences of cultural genocide — authorities suppressing languages, religious practices, economic systems, all the things that create a cohesive community. Throughout British Columbia dozens of these indigenous communities have recovered their languages, traditional practices, and so forth, and those same communities have experienced decreases in violent crime, alcoholism, and suicide. In some the suicide rates dropped to the same as the general population, which is astounding for an indigenous population.

Supin: How do you know if something traumatic happened with a child? Will he or she express it behaviorally?

Perry: Frequently yes, but it's amazing how many times kids will also make an initial disclosure. They'll say, "I don't like to go to Grandpa's house." If that gets no response, they might come back later and say, "Grandpa likes to play games . . ." But if, when a kid makes that comment, the adult says, "Grandpa loves you. Don't talk bad about Grandpa," the kid won't bring it up again. The child was testing the waters, to see how open you are to hearing something negative about Grandpa. The moment the child senses that you're not open, he or she backs away.

Supin: When you're getting children to talk about what happened to them, how do you approach them?

Perry: People who have experienced trauma, especially children, need to be able to control how and when they tell their story. When we demand that someone tell us what happened, even with good intentions, we often reactivate the traumatic memory and the accompanying stress, which makes matters worse. Only the child knows what the proper time and method of revisiting the trauma is.

I once worked with a girl who at the age of three had witnessed her mother's brutal rape and murder. The attacker then slashed the girl's throat and left her for dead. She was alone with her deceased mother's body for eleven hours before someone found her. I'd been brought in by the girl's attorney to prepare her for possibly testifying in court. The first time we met she was sitting on the floor in a room with dolls, toys, and books.

I sat down on the floor nearby, to make myself less imposing, and began drawing in a coloring book, chatting with her about what I was coloring and the colors I chose. Eventually she moved closer and directed me to use specific crayons. We colored together in silence for several more minutes before I asked, "What happened to your neck?" She ignored the question. I quietly asked again. She became agitated and reenacted the events by pretending to slash the throat of her stuffed animal. She then started jumping off the furniture. Afraid she'd hurt herself, I caught her, and she collapsed in my arms and in a slow monotone told me what had happened.

From then on I let her determine what we did at each therapy session. For many months she would motion for me to lie silently on the floor as she revisited her trauma in small, controllable doses in order to make sense of it. She would have me lie down, and she would demonstrate how she had tried to revive her dead mother. She always insisted that I wake up, which, of course, I did. She wanted a different outcome. We did this again and again, and little by little she made the violent memory into something she could live with and not have it crush her.

Her emotional state evolved, too. Over the months her behavior softened and she grew more deliberate. Finally one day, instead of instructing me to lie on the floor, she led me to a rocking chair, chose a book from the bookshelf, crawled into my lap, and asked me to read her a story.

Supin: What advice do you give to people who work with traumatized kids?

Perry: It's critically important to meet the child exactly where he or she is developmentally. Imagine a twelve-year-old living in poverty, with hurtful and unpredictable parenting and miserable experiences at school. That child will be much less mature than a typical twelve-year-old. In fact, he's probably more like a four-year-old socially, and maybe a seven-year-old cognitively.

I teach people to change their expectations at first, because otherwise he won't progress. I'll tell his teachers that even though he's in sixth grade, his ability to learn is closer to a first-grader's, and he has the attention span of a preschooler. You wouldn't expect a preschooler to sit still for more than a few minutes, would you? So they adjust their expectations and allow the child to move around or shift to a new task more frequently. The child's behavior soon improves, and that once-disruptive boy can learn and even excel at an appropriate age level.

Supin: Is it really so easy?

Perry: The great thing about our brains is that they can adapt and improve quickly as soon as we're given the support we need. I've seen many instances in which children with extreme trauma histories and seemingly insurmountable deficits catch up to their chronological age remarkably fast.

Justin, who inspired the title of my book *The Boy Who Was Raised as a Dog*, was six when I first met him in a hospital pediatric intensive-care unit. He was nonverbal and always either rocking and moaning or screaming and throwing food and feces at staff. He'd been diagnosed with "static

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encephalopathy" — severe brain damage of an unknown origin, unlikely to improve. The doctors had assumed he would be unresponsive to treatment, so they'd offered none.

Tragically no one had asked about Justin's living conditions prior to his hospitalization. His story was heartbreaking. When Justin was two months old, his fifteen-year-old mother had left him with his grandmother, who'd died nine months later. The infant ended up with the grandmother's boyfriend, who did not have the emotional or intellectual skills to raise a baby. He called Child Protective Services, but since he didn't seem to pose a threat to the boy, CPS didn't act. The man was a dog breeder by profession. So he raised this child in a kennel as if he were a puppy. Justin was fed and changed, but otherwise lived in a cage for five years with only dogs for companions.

His severe developmental delays were the direct result of the conditions he'd endured. We immediately conducted new assessments, operating from the premise that Justin did, in fact, have the capacity for developmental growth. Our treatment gave him the opportunities he had missed earlier in life. Speech therapists introduced him to language and words as they would a toddler, and physical therapists helped with toilet training and the motor skills typically acquired by preschoolers. His progress was astounding. He leaped over developmental milestones in mere weeks instead of years.

Supin: Do parents and teachers ever resist your methods?

Perry: The child's treatment is a collaborative effort, of course. I listen carefully to the perspectives of the other adults involved and respectfully engage with them. The relationship I create with, say, a teacher becomes a proxy therapeutic relationship for the child. Instead of just seeing this child once a week and doing whatever voodoo I'm supposed to do in that hour, I've got co-therapists out in the community who are providing dozens and dozens of positive, healing interactions with the child.

When appropriate, I've engaged a whole classroom of kids in helping one of their own. I offer some information about why this child is different — maybe this girl didn't have a loving mommy and daddy, so she doesn't understand how to make friends — and the child's classmates go from treating her like a pariah to being her biggest protectors and champions.

Supin: Do you teach the traumatized children how to control their own stress level?

Perry: Yes, we do show them many ways to regulate their stress-response system: mindfulness, walking, sometimes rhythm, music, and dance. Different people will find different activities helpful. I'm a big fan of the sounds and rhythms of nature. There is something centering about them for me. But other people might not like that.

Some people can't be alone, can't sit still with their own feelings and no TV on, nothing to distract them. Solitude and quiet make them incredibly uncomfortable, like any novel experience would. I think our culture doesn't provide enough reflective moments for children as they grow up. We fill every moment with the radio, the TV, smart phones.

Supin: What are the effects of not having that reflective time?

Perry: You'll have a lower probability of being creative. You won't be able to put together different experiences that you've stored away. You will end up using problem-solving approaches that other people have already devised. This may not be a bad thing if it works in a specific situation, but the world is always changing, and everybody's circumstances are a little bit different.

Supin: What about medication? Under what circumstances is it a part of treatment or recovery?

Perry: Medications can be helpful as an adjunct to the full treatment process. Unfortunately they are often over-prescribed and used as the *only* therapeutic intervention. In those cases they are not effective. I am very cautious about using medications.

Supin: Tell me more about how you individualize your treatment plans.

Perry: Let's say I'm meeting an African American boy whose most emotionally charged encounter with a white man was when a cop harassed his dad. This has given him preexisting negative associations about white men in positions of power. And maybe the last time he went to the doctor, he got a shot. So he sees me — a white male doctor — and his stress-response systems get activated. He is wary and distrusting of me. Considering his experience of the world, this is completely reasonable.

When I'm working with this child, I want to allow him time to create a new, more accurate set of assumptions about me. Therapy is not about erasing those old connections and associations; it's about building new ones. Once you make those associations, they require a little bit of effort to maintain.

Supin: Are there any clients you wish you'd treated differently?

Perry: Hell, yes. Almost all of them. We are always learning, and we learn the most from our mistakes. The people who

are generous and courageous enough to share themselves with me all end up teaching me by letting me know when I screw up. Fortunately most of them are forgiving.

Supin: You've described some of the most common responses to trauma, but don't people express trauma in different ways?

Perry: I'm embarrassed to say that it took me a while to realize they do. When I was first beginning to study trauma in the late 1980s, I worked with a group of boys in a residential facility — not quite a hospital but more than a group home. They all had serious behavior issues. At the time I was making the connection between trauma and a sensitized stress-response system. I presented my findings to a group of peers, and somebody raised his hand and asked, "What about girls?" And I realized I hadn't once observed girls to see if their responses were different.

We subsequently discovered that there are two opposite expressions of a malfunctioning stress-response system: acting out and withdrawing. Let's say Billy and Sally were both mistreated in similar ways. Billy becomes an incredible pain in the ass: disruptive, aggressive, failing at school. Meanwhile Sally is sweet, shy, and compliant; though a poor student with few friends, she exhibits no behavior problems. Billy is saddled with negative labels, constantly punished, and eventually kicked out of school. Sally is pitied or ignored, just passed from grade to grade, assumed to be OK, if not too smart or socially adept. No one has the time or inclination to explore why she might be unable to make friends or connect with her teachers.

Both Billy and Sally have lost the ability to control aspects of their behavior. In the midst of an outburst Billy literally can't understand that throwing a chair will likely get him sent to the principal. Disciplining Billy further only reinforces his condition. Similarly when Sally shuts down, she can't tell you what's happening to her. Coaxing her to describe her feelings is essentially futile; she's unable to access that level of thinking and reflection.

It may seem appropriate to discipline Billy for throwing the chair across the room and tell him that his outburst is dangerous, or to pull Sally aside and ask if she needs extra help with math or wants to talk about how the other girls bully her on the playground. But neither approach will work.

Acting out versus dissociating doesn't always fall along gender lines. The younger you are when the trauma occurs, the more likely you are to dissociate, because a toddler who is sexually abused can't fight or flee. Maybe she'll try to resist or run at first, but it won't work. So all she has left is her capacity to retreat into her inner world. An infant or toddler's normal response to a threat is to cry for an adult. If the adult hurts her, though, she has no option but to dissociate.

Supin: I remember when my daughter was an infant, if she was crying or upset in public and I was anxious about it, I could never calm her down. But the moment I relaxed and rocked her, she'd calm down instantly.

Perry: This illustrates the contagious nature of human emotions. If you are not calm, it's impossible to calm someone else. And rhythm is one of the most powerful methods of re-



laxing ourselves. Key neural networks change their activity in response to repetitive, rhythmic activities — dancing, drumming, singing. Even children who have not experienced trauma will use rhythm to regulate. When a child bounces his leg or taps his pencil on his desk, it may be aggravating to his teacher, but it's probably soothing for the child. If you want children to pay attention and learn, it's important to allow them to move in ways that keep them focused. For some kids I recommend desks that literally rock. I'll have other kids walk on a treadmill or pedal a stationary bike while doing their homework.

Everything is more effectively learned in rhythm. We teach kids the alphabet with a song. The military teaches soldiers to work together through marching, even though it no longer serves a functional role in combat. Some teachers have brought hip-hop into the classroom to help teach math or history. Of course, not every technique works with every child. For some, decreasing the degree of stimulation can be the right approach.

Supin: Do those practices change us physically as well as mentally?

Perry: I think of mind and body as one and the same. Your mindset is reflected in your physiology. When you're on active alert, your body chemistry changes. This isn't necessarily bad. You can learn valuable information during these alert moments. But if you want to use that information in unique and creative ways, you'll need to return to a state of solitude and reflection.

Supin: But too much solitude — such as when someone is placed in solitary confinement — is bad for us, right?

Perry: Yes, solitude is radically different from forced solitary confinement. Solitude is usually a choice and includes sensory elements — the sounds of nature, music, the back-

ground hum of daily life. Solitary confinement is forced upon someone and is highly distressing; you're cut off from human interaction, images, sounds. Sensory deprivation can cause a person to become psychotic. Solitary confinement makes someone more dangerous, not less.

Supin: Some have suggested that birth itself is traumatic. Do you agree?

Perry: I would agree that birth involves an extreme activation of the stress response, which results in an alteration in the stress-response systems. So, using that earlier definition, yes. Being born is a frightening experience. It's a huge change in your environment. In utero you are mostly regulated. Your world is dark, wet, warm, and full of calories and oxygen. You have pretty much all you need to keep your brainstem happy. Then you get pushed out of that environment. There's a period during birth when you don't get enough oxygen. It's probably like you're drowning: absolutely terrifying. Birth also involves moving through a tight space, which hurts. Finally there is this sensory transition. All of a sudden your environment is 72 degrees instead of 98.7. You see sights you've never seen before, and you hear sounds differently, and the rhythm of your mother's heart is gone. Even if your mother does everything right, you will have a huge stress response. The first time you feel an ice-cold wipe go up your rump, no matter how much the person changing you smiles and says you're beautiful, you think, What the hell is this?

But, as I said before, this sort of stress isn't necessarily a bad thing when you have attentive caregivers. You're hungry, so you cry, and somebody feeds you, and you get back to baseline. You're cold, so you cry, and somebody comes and holds

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you, and you get back to baseline. You experience thousands of these sources of stress in the first few years. This is when your infant brain begins to make an association between a human face, a calm tone of voice, a loving touch, and the relief of physiological distress.

Later on, when you meet somebody and they smile at you, you feel good, even if it's a new person or a novel situation. In the lower, less-evolved region of the brain, where an experience gets marked familiar or unfamiliar, the brain says, *This is a good person*. And if I expect you to be good, I will project warm, positive signals of engagement. Because human emotions are contagious, I will elicit from you what I project.

As children get older and come into new environments, if their past experience is that people are kind, they're going to smile and be open to interactions. If people smile back, that reinforces this worldview, building an even bigger catalog of positive experiences. When the child occasionally encounters somebody who's not friendly, it doesn't undo all of that.

Supin: Do traumatic experiences contribute to addiction?

Perry: To answer that we first need to understand addiction: The brain's reward systems cause us to feel pleasure when stimulated. Typically there are many ways we can activate those reward systems during our day, most importantly by having a positive human interaction. But for a child with few loving relationships, it's hard to find those types of rewards. Maybe he's in a classroom where he's not allowed to move, and there's no music or other pleasurable sensory input. He isn't in the in-group and sits by himself at lunch. After school he goes home. Mom and Dad are both working. So the kid turns on the TV and starts to eat even though he's not hungry. He'll eat Dorito after Dorito because the salt and fat can stimulate the reward networks; ultimately he gains weight. As he gets older, he learns about online porn. He can masturbate, and that feels good for a while. Or he learns that if he drinks, it will make him less anxious. Or he might use some drug to artificially stimulate the reward systems in the brain.

The probability that you'll engage in unhealthy forms of

reward increases when your stress-response system is sensitized from trauma. So a child who has experienced trauma and lacks healthy relationships is primed, once he's introduced to alcohol or drugs later in life, to use them again and again and again.

For somebody who has these vulnerabilities, relationship-based interventions like Alcoholics Anonymous and Narcotics Anonymous are usually what works. They aren't perfect, but they're an opportunity to have human contact pretty much any time you want. You can go to a meeting. You can call your sponsor. Community-based interventions also help. Building a therapeutic web and repairing fractured relationships makes all the difference.

Supin: When a child is a bully or behaves violently, how do you tell whether trauma is fueling that behavior?

Perry: As you might guess, it's not easy. In general if a child is aggressive toward other children, that's a behavior the child has seen at home. Frequently children who humiliate and degrade vulnerable peers have themselves been made to feel small and degraded by a parent or sibling. It would be rare for someone to be a consistent bully without having either seen that behavior or experienced it in some way.

Supin: How come some kids who experience bullying become bullies and others don't?

Perry: That's a great question. Often in families in which two kids are abused, I'll find that one becomes aggressive and the other becomes a protector. I probably have ten families I'm working with right now in which one grown sibling is a cop or a social worker and another is in prison or has a substance-abuse problem. I could speculate about that, but there's a lot more we need to learn first. I do know that nothing is inevitable. There's a pathway out of these traumatizing environments.

I've seen a tremendous range of responses to both good and bad experiences. I might work with one child who's troubled despite having had all kinds of wonderful opportunities, and another child who's had a rough life yet is humane, kind, and doing well in school. Again, I don't know why this is.

One of the most important variables, in my experience, is *when* things happen. If you experience emotionally disengaged caregiving, humiliation, or a sense of being unwanted in the first year or two of life, even if you then escape that environment — maybe you're adopted, or your parent who was depressed gets better — that early experience can still cause profound social and emotional problems for you all the way into adulthood. On the other hand kids who have a good first year of consistent, predictable caregiving and then end up in shelters or foster homes and bounce around the system, maybe get sexually and physically abused, and so on — those children often function reasonably well as adolescents.

The brain develops very rapidly both in utero and for the first couple of years after birth. In utero, especially, you're making a lot of neurons; in fact, the majority of the neurons in your brain were created in the womb. You continue to make neurons throughout life — today you might make two hundred — but there are periods in utero when you make twenty thousand neurons per second. The foundation of the brain's

architecture is mostly formed in the first couple of years of life.

Supin: What helps build that foundation?

Perry: The heart of all human development is the relationship you have with your primary caregivers. If you're getting adequate nutrition and appropriate doses of touch, talk, eye contact, and so on, then you'll achieve your genetic potential. The genes basically provide the blueprint, and the experiences make that blueprint a reality. For example, you can have the genetic capability for language, but if nobody ever speaks to you, you will not develop speech.

Supin: Are there periods in early childhood when it's easier to acquire a skill like language?

Perry: There is a typical developmental sequence children go through, but we do know that children can acquire skills out of sequence. The development of cognitive skills such as language is somewhat dependent on whether a child's social and emotional needs are met at that same stage of development. For example, there's a point when children need to be held and rocked, and also a stage when they don't need that as much anymore.

I think early-childhood education right now is overemphasizing cognitive development and selling short social and emotional development. If you read a preschooler a story at night, she begins to associate reading with comfort and pleasure. She'll start to identify letters and words and won't have any trouble learning to read before kindergarten. But a child who learns to read at the age of five through repetition — this is an A, this is a B, this is a C — won't enjoy reading, because it isn't fun. You're not pairing reading with pleasure, with being in the lap of somebody who loves you, with feeling that warmth, with laughing and goofing around. It becomes a completely different experience.

Supin: What do you think of the notion that some people are just born bad?

Perry: I do not believe anyone is born bad. There's no credible evidence that sociopathy is genetic. It may be that there are genetic components that contribute to a difficulty developing empathy for others, but that does not necessarily make the person bad. I know a number of people who have a hard time understanding others' feelings but have a firm sense of right and wrong and act in responsible ways.

Supin: What about someone who commits a heinous, violent act? Would your first instinct be to look for signs of traumatic experiences that might have motivated that behavior?

Perry: Well, it might not be a traumatic experience that led to it, but I do think the best way to understand people is to find out their stories. Where did they come from? What was their family like? What happened within their community? I've interviewed a number of people on death row who have committed horrible crimes. I can't always put my finger on a single event, but it's rare that, after hearing an inmate's story, I don't have a clue why he is there. Frequently I'll see multiple experiences that might have contributed to it. Almost always the inmate's story includes being marginalized by a group he wanted to be a part of.

Many of the worst serial killers were humiliated, degraded,

and marginalized by a parent. Many school shooters felt marginalized or humiliated by their peer group. Anyone who is marginalized, for whatever reason, will have a much higher baseline level of distress. In most early human cultures the worst punishment wasn't the death penalty. It was banishment.

Human beings are meant to be in groups. For the majority of the time we've been on this planet, we've lived in relatively small tribes or clans, and our major competitors have been other human beings. So our species' great gift for relationships is a double-edged sword: it has enabled us to join together, but it's also given us the instinct to create an "us" and a "them," often with toxic consequences. If someone is unfamiliar, our default response is defensive. Our tendency to view novelty as potentially threatening leads to hateful beliefs about people who have, say, a different skin color. In the U.S. we have labeled many cultures as "them": immigrants, African Americans, Native Americans.

Supin: So the antidote to this is for people to have good experiences with the groups they fear.

Perry: Right. The challenge is that fear shuts down the reasoning and reflective part of our brain. We're less likely to be open to those new experiences when we're afraid. We're also much more compliant toward authority. We're more easily led and apt to act in ways that violate our own values. We see this at play in our politics and our communities and our schools when there's an in-group and an out-group. The desire to stay in the in-group will cause some of us to follow a bully and do things we'd never have done on our own. I don't want to extend this too far, but you could say that many of the policies and practices instituted in the U.S. after 9/11 were accepted only because citizens were fearful. I believe people in positions of power were conscious of this.

Fear is the most common reason that our brain shuts down, but exhaustion, hunger, and thirst have a similar effect. If you're tired and poor, you're less able to think about the future of humankind. It's hard to be reflective if you don't know where your child's next meal is coming from. Your brain says: *Get food first*. If you can't find a safe place to raise your children, then reflection and learning probably seem like indulgences you can't afford. This isn't about biology or genetics. It's about the relative health and richness of our relationships and environments.

Busyness can also shut down our higher reasoning — being overscheduled and living in an overstimulating environment, the TV always on, the phone buzzing, loud cars driving by.

Supin: If *Headline News* is perpetually on, you may think it's making you smarter . . .

Perry: But basically it's making you dumber. It's continually bombarding you and distracting you from thinking. You're unable to reflect on what you're hearing, and you end up believing anything you are told on TV. This is compounded when news stories are emotionally charged. Just hearing a story delivered in a more emotional tone of voice or with an intense image will hinder our ability to absorb and reflect on that information. It's the reflective part of the brain that helps us heal. It's the part that makes us most human. ■