



STRESS TEST

HOW ADVERSITY AND THE BRAIN CAN WORK TOGETHER TO INHIBIT LEARNING.

Words **KASEY JACKSON**

A recent walk through the hallways of a central Indiana middle school led to a surprising find. Taped to the wall and situated near photos of the most recent Teacher of the Year recipients was a handmade sign, printed with colorful handwriting: “Are you or someone you know cutting? If so, talk to someone.” There was a number to text for help, with a promise that someone would be on the other end to listen and offer advice.

Cutting, a form of self-injury, is common among young people. Just “Google” it and you’ll find countless articles and data. Experts say anxiety and depression could be at the root of it, but more severe mental illnesses could be a factor as well.

The Anxiety and Depression Association of America states that one in eight children is affected by an anxiety disorder. This could mean the child shows signs of fear, nervousness and/or stress.

A child may suddenly stop wanting to go to school, or may seem shy even toward people he or she knows well. There might be sleep issues, an eating

disorder, sudden emotional breakdowns or disinterest in things once enjoyed. While some anxiety is normal (who enjoys taking a final exam?), it’s not normal if it persists.

And it’s not OK to delay help.

A Children’s Mental Health Report from 2015, conducted by the Child Mind Institute, states that 80 percent of kids with a diagnosable anxiety disorder and 60 percent of kids with diagnosable depression are not getting treatment.

That’s a lot of stressed kids heading to school with a lot of baggage.

So what is going on and what can be done?

To find out, we turned to an expert. Lori Desautels is an assistant professor in the College of Education at Butler University in Indianapolis, Indiana. She has a background in counseling and did her doctoral work in philosophy with an emphasis on adolescent thought formation. She’s also written books on the subject of neuroscience.

Desautels sat down with *Kiwanis* magazine to explain

The amygdala processes emotion and learning. Any negative emotion activating it shuts down the frontal lobe, which is where we do school.

why, if we understand how our brains work a little bit better, we understand how learning happens a little bit better.

The brain can seem overwhelming. But knowing how it works is a great first step toward self-acceptance, happiness and good health.

(Oh, and science talk is good for the brain. So you’re likely to be smarter just for reading. And there are tips for *Kiwanians* to use as well.)

Kiwanis magazine: Let’s be honest: The topic of stress

and how it affects the brain can be hard to, for lack of a better term, wrap our brains around. What should we know first and foremost?

Lori Desautels: What we’re seeing in schools across the nation right now, and probably beyond, is that the new learning disability really has become anxiety. About 27 to 33 percent of children in the United States right now are walking into schools carrying significant anxiety.

KM: *That’s a lot of stressed kids.*

LD: It is. And we’re seeing this not only with students but we’re seeing this in our teachers too. There is such an emphasis on

testing. And teacher’s evaluations are often tied to test scores and merit pay. So that’s very stressful.

KM: *You’re teaching students and teachers about the parts of the brain and how and when they develop. Why?*

LM: It’s really a four-step process. We teach them neuroplasticity. We teach them the hippocampus. We teach them the amygdala, so they understand and can start to feel when they get triggered. And then we talk about the prefrontal cortex.





KM: Can you talk more about these parts of the brain and how they function?

LD: Brain science is helping

prefrontal area is the seat of sustained attention. It's where we emotionally regulate. It's where we problem solve.

seat of learning and memory, where we consolidate memory. In each hemisphere, it sits next to the amygdala inside the limbic brain. It's supposed to stop the stress response. But there are these glucocorticoid receptors in the hippocampus, and when cortisol, which is our stress hormone, and adrenaline are constantly turned on, it's like a constant drip, drip, drip. Because we're wired to secrete cortisol under stress and then our bodies return to a homeostasis — balance — once the stress has left. But we're seeing children and adults with this drip, drip, drip — it's like this chronic, ongoing stress response. And cortisol and adrenaline can actually increase the number of those glucocorticoid receptors. And then we see cell death in the

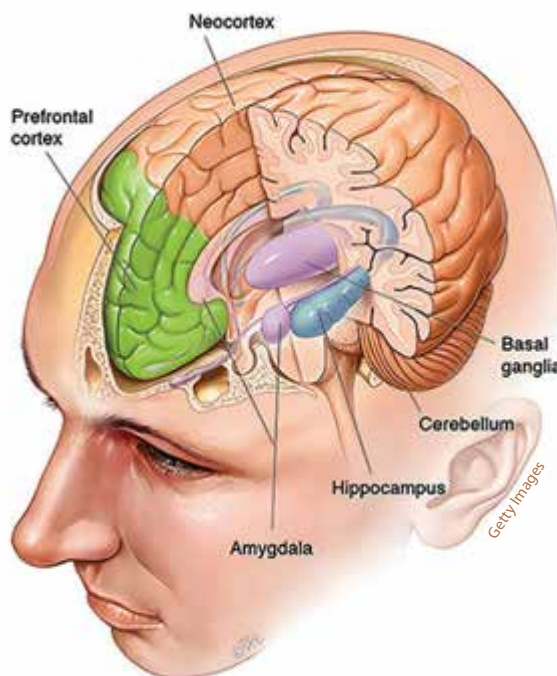
So not only does stress cause neurobiological damage: inflammation, disease. We know that it also affects learning.

educators to understand that when any of us is in a chronic stress response brain state, there's a cluster of neurons in each side right above the temporal lobe called the amygdala, and that's our emotional smoke detector in the brain. The amygdala processes emotion and learning. And when it's ignited, when we're angry, when we're disappointed, when we're scared, when we're worried, any negative emotion activating it shuts down the frontal lobe, which is where we do school. That's where we do life.

Behind our eyebrows is the prefrontal cortex, and this is the last part of the brain to develop. Research said for years, 25 was about the age when it finished developing. But now the research is sharing it's late 20s to early 30s. So even without stress, this part of the brain is appropriately immature as we go through school. So we understand now that this

Where we set goals. Working memory is there too.

But chronic stress, chronic adversity, literally not only throws us into a fight/flight/freeze response, where we're constantly reacting, but we now see that it kills off brain tissue in an area of the brain called the hippocampus. The hippocampus works in conjunction with the amygdala. Our hippocampus is the



hippocampus. So not only does stress cause neurobiological damage: inflammation, disease. We know that it also affects learning.

KM: *So if a child is experiencing anxiety or stress, no matter the reason, that stress takes over the amygdala. And our frontal lobe doesn't know how to handle that yet because it's not fully developed. Wow. That explains a lot about how young people deal with stress — or don't.*

LD: Exactly. That frontal lobe under stress is hijacked. Our brain develops through experiences. So, when you look at a child's environment, when you look at the relationships, the attachment, the connection that is there or lack thereof, or just the environment, we know that impacts brain development in ways we didn't understand in the past.

KM: *How does our lack of completely understanding the brain hurt us?*

LD: The adolescent brain is very misunderstood because beginning at about 4th or 5th grade, development is not linear. Development is messy and chaotic. What we know is starting around 9 or 10 years old up until about 15, this is the second greatest time of

brain development. And as educators, we're not prepared and we weren't taught to understand how that impacts learning in the classroom.

We're helping our teachers to understand that our old ways of practicing behavior management, our older ways of teaching are not in alignment with how the brain develops. USA Today reported nationally that between the ages of 10 and 14, the suicide rates have doubled between 2007 and 2014. And I'm a firm

A long exhale lowers your heart rate, lowers your respiration, lowers your blood pressure.

believer that a big part of this is because we are misunderstanding brain development. The brain is so fragile in those adolescent years.

KM: *It's incredible to think there's so much development happening at this age.*

LD: Between the ages of 10 and 15 or 16, the brain has the most potential it will ever have again in its lifetime. It's a sponge, taking in everything. And it can change. But adolescents are emotional. Remember, their limbic system is fully developed. The amygdala is fully developed. So they're walking around

with these hot, fiery emotions. But the frontal lobe is underdeveloped, so it's very hard to dampen that stress response.

KM: *So how can you dampen the stress response?*

LD: We're helping teachers and students to understand that for learning to happen, we all have to be upshifted. We have to be in our frontal lobe. Because if you're triggered, and you're in your amygdala, and if your child

is in his amygdala, nothing good is going to happen. We actually escalate each other and the conflict grows bigger. So when you're a teacher

and you have a class of 25-35, and kids are triggering each other and you get triggered, we are helping teachers to understand they need to take a step back for a minute. Research is showing that the stress response is dampened by two ways: breathing and movement.

KM: *What does this look like in a classroom?*

LD: People look at you funny when you say "meditation" in school. We still equate that with religion. But meditation is really a focused-attention practice. And it helps students to regulate. We're teaching

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students how to breathe in really fun ways, novel ways. Breathe in your favorite color, breathe out a worry. A long exhale lowers your heart rate, lowers your respiration, lowers your blood pressure. It’s the exhale that matters more than the inhale.

KM: *Why do you think we’re seeing so many more children facing severe anxiety and stress?*

LD: I like to use the term adversity. When I say adversity it could be anything: lack of sleep, boredom, lack of good nutrition, or at the high end it could be sexual abuse, domestic violence. So many reasons. Our poverty across our nation is significant. About 25 percent of our children in adolescence in the United States are coming from poverty. Poverty is an adversity. Along with poverty, when you’ve got both parents working and in a survival brain state, sometimes neglect happens. And so that child is pretty much on their own. They have responsibilities at young ages that they shouldn’t. That hijacks and interferes with their own development. I also think we’re living in the most populous, diverse, technologically savvy time. So technology has really disconnected us, even though it’s connected us. Our children, even though they’ve been raised as digital learners and digital natives, find technology to be stressful.

We must attend to the social and emotional and brain health of a student. That’s first. That’s foundational. Then learning happens.

KM: *What can the average person do to help?*

LD: When you are volunteering or working with children or adolescents, there is nothing more important than connection and building a relationship. I think of tutors. I think of YMCA volunteers. I think of Boys & Girls Clubs. I think of Kiwanis. And this is what people don’t realize: One healthy attachment or connection with a caregiver — it doesn’t have to be a parent or relative — can change the trajectory of that child’s life because it changes the way the brain

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begins to fire. It actually upshifts so that child starts to feel felt. When we feel purpose, when we feel felt by someone else, we upshift. We move from that fight/flight/freeze response into the frontal lobe. So we can help by helping a child feel felt and connected. We can model how we handle adversity and we can teach regulation.

KM: *Do you have any other tips on how to approach a stressed child?*

LD: Remember that no one calms down when you tell them to calm down. So when you approach a child, ask these three questions: What do you need? How can I help? What can we do to make this

better? You almost shock a child because they are ready to posture and defend when they’ve made a poor choice. You actually distract the brain state, so instead of posturing and defending and getting ready to fight or run, you upshift gradually to that frontal lobe. You may not get an answer from them, but they hear you. So we’ve encouraged teachers to continue to ask, even if the head goes down. Even if they start to walk away. They hear you.

KM: *It makes sense to teach young people how their brains work so they know why things are happening.*

LD: We are helping teachers and students to understand the science beneath our behaviors, and that objectifies it. So suddenly it feels safer — you don’t feel like there’s anything wrong with you. You begin to understand, ‘Ohhhh, it’s my amygdala.’ ☐



Lori Desautels
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Turn the page to learn more, including ways you can help.

Tackling stress

USE YOUR NEW KNOWLEDGE ABOUT STRESS AND THE BRAIN TO HELP THE YOUNG PEOPLE IN YOUR LIFE.

Now you know that stress and anxiety can actually turn off parts of your brain that help you learn. But what causes stress in young people, and how can you help? There

are lots of fun ways, but it comes down to two main ideas: Get them moving and breathing. If you volunteer in schools or with young people, this information can help you to help them.

COMMON CAUSES OF STRESS IN KIDS:

- Bullying
- Grades
- Divorced parents
- Violence in the home
- Moving to a new home or school
- Sexual, physical or emotional abuse
- Social anxiety
- Peer pressure
- Fear of failure
- Tough classes
- Too many activities
- More responsibility
- Dating pressure
- Social media pressure

FUN WAYS TO PREPARE FOR LEARNING

- Listen to music
- Dance
- Pop bubble wrap
- Breathe deeply/focused breathing
- Tapping therapy (*learn more at tappingsolutionfoundation.org*)



WATCH THE VIDEO

Kiwanis magazine recently took 10 kids, ages 11 to 17, to The Escape Room, an interactive game setting where players have one hour to gather clues and get out of a locked room. Following the escape challenge, brain expert **Lori Desautels**, an assistant professor in the College of Education at Butler University in Indianapolis, Indiana, talked with the group about how their brains work and how they can offset stress and anxiety with breathing and movement. Visit kiwanis.org/2018stress to watch the video.