

Episode 13 | How to Notice Behaviors and Make Adaptions

00:00 The Power of Drafting and Collaboration

02:54 Understanding the Hippocampus and Trauma

06:01 The Impact of Trauma on Children's Brains

09:02 Healing and Supporting Children with Trauma

11:50 Practical Tools for Educators: Behavior and Accommodations Tracker

Ruth Ayres (00:01.678)

Becca you came to Indiana for us to really have a drafting. It was a long weekend and we were drafting. I think you wrote more than 15,000 words. Is that true? Was that what the final word count was?

Becca (00:04.84)

Yeah.

Becca (00:16.433)

Yeah, it was just over 15,000.

Ruth Ayres (00:20.322)

Yeah, you say just over I bet you know the exact number.

Becca (00:23.473)

Yeah, it was 15,432.

Ruth Ayres (00:27.522)

Yeah, you are so good at remembering exact things. But like, it was just so many words. And I was floored by the amount that you could produce. So Andy, my husband and I was just like, thought of all the ways we could spoil you. And right, like we had great food, we had some time for breaks, you were able to sleep in.

and you were writing. It was kind of, yeah, that's what we were doing. So there was one point and I had written a little bit and we got to talking about the hippocampus. And I am still so grateful that I got to witness this, that you like came alive with all these questions and you immediately started researching. And then you pulled out your sticky notes and you're starting to take notes.

Becca (01:00.712)

there.

Ruth Ayres (01:25.566)

and you're going back and it's not like, it's like scholarly articles, scholarly research. Like this stuff that I would have had to spend like a week just like reading and rereading and you're just firing so fast in this learning about the hippocampus. And then you're, putting sticky notes up on the wall and they're like color coded and you are just, you're going to town and you're.

You're dancing a little bit, you're twirling, you're thinking, you're back to reading. And it was just this beautiful moment of research that I don't think we always think about like, is what research is. And so of course you're like, we have to talk about the hippocampus. Okay, so let's talk about the hippocampus,

Becca (02:16.719)

Yeah, so it's like funny to me. I rarely these days have time to stop and think about something to the level that I was thinking about the hippocampus that day. But I also don't know if I've ever had someone watching my process. So I kind of love that story because it's hilarious to me that like but that's what I do right and at one point you were like, I don't know what you're doing with those sticky notes but that was how I processed right?

Ruth Ayres (02:42.99)

Yeah, but just keep going. And I'm taking some pictures of you. You didn't even know I took the pictures. Like, you are in the zone, the learning zone. So what was so fascinating that we should know?

Becca (02:48.337)

No idea!

Becca (02:54.653)

So when you're learning about how the brain works and how it's impacted by trauma, because I've learned how the brain works because I'm trying to understand how trauma impacts the way that a brain functions, when you're doing that initial reading, you hear a lot about the amygdala, right? Your amygdala is the emotional center of your brain and children or people who are exposed to chronic stress.

their amygdala grows larger, right? And it can become overproductive, it is overreactive, you can become over emotional and more irritable. And something that I hadn't yet processed was the impact of chronic stress or long term trauma exposure on the hippocampus. And so I like literally remember like putting my laptop on my lap and going, Ruth!

Look what I just learned. And then I couldn't tell you yet, right? Like I hadn't processed it, but I was just like so excited that I understood the impact of trauma and chronic stress on the hippocampus. So I'm going to try my best to explain to you my thinking in a less excited way so that it's easier to understand. the hippocampus...

Ruth Ayres (03:50.99)

Mm-hmm.

Becca (04:09.507)

is your memory center in your brain and its job is to process memory to take it from long or short term memory and process it into long term memory. And when you're exposed to chronic

trauma, chronic trauma, chronic stress, your hippocampus can actually shrink. And sometimes it can be damaged, right? The level of intensity can damage

the functionality and the physicality of your hippocampus. And so your amygdala is actually right near your hippocampus in your brain. And as that's getting larger, the hippocampus is shrinking in response, and sometimes is even damaged. And like I've kind of known that in the back of my head, but never really considered how that impacts brains impacted by trauma, and then how it presents itself in

kids in classrooms and kids in the world and people in the world, right? And so one of the biggest impacts that I was processing and reading about was it eliminates the hippocampus when a hippocampus is damaged or smaller than it's intended to be. It is no longer able to distinguish a past memory from a present experience. And so

someone who has a damaged or smaller hippocampus could be responding to something that happened seven years ago in the present moment, but have no conscious thought that that's what's happening. And so when things happen in the world around them that trigger a part of their brain, trigger the hippocampus memory, they can be responding as if it were in a traumatic situation, even if it's not. And so

as their teacher, as their grownup, you're seeing kids like have these huge reactions to things that don't really make sense. Something falling behind them, something moving fast, a loud sound, but they're in school and they're safe and they've never been hurt at school, but they're acting as if someone's coming to hurt them severely. It's because their hippocampus isn't determining that this isn't a past experience, it's a current experience.

Ruth Ayres (06:29.752)

So something that we've probably have all heard a little bit about would be like soldiers returning from a war zone. And so we may be familiar with it in that sort of setting. And so I think sometimes we've heard about that or we can imagine, we know how traumatic it is, and then veterans will come back and sometimes have a really hard time.

Becca (06:38.482)

Yeah.

Ruth Ayres (06:59.48)

functioning because they're like those memories are coming back, right? And it feels like it's the same, like it's happening now. Is this the same connection that we're making for kids that are in kindergarten? So sometimes in kindergarten, I think, or with students, we think, well, they haven't been someplace like a war, right? And yet what you're saying is...

Becca (07:14.611)

Absolutely. Yeah.

Ruth Ayres (07:27.592)

the trauma is still damaging the hippocampus in much the same way. Is that true, Becca? Am I following the work?

Becca (07:34.579)

You are, you're exactly right. And a child's brain can actually be damaged. mean, there's research research saying that it can the damage the hippocampus damage can begin before the child is even born as the brain is developing if they're exposed in the womb to a stressful situation for a long enough period of time. And the impact in those first two years children who experienced trauma in the first two years of their life.

is more severe, because that's when their brain is making the biggest development, the impact is more severe than any trauma that can happen pretty much after the age of two. That is a slight generalization. I'm sure there is research to say that there are other things that could happen specifically, but the general research says that those first two years trauma that happens in those first two years is the most severe impact. And

Those are the two years that kids can't always talk about. They can't tell you about traumatic experiences. They might not have conscious memory of those traumatic experiences. And so when they walk through your door in kindergarten, whether they're with a biological family member or a foster family or have already been adopted, there might not be knowledge that a damaged hippocampus could even be a possibility. Right. And like as a kindergarten teacher,

understanding that you need to be considering the state of your students hippocampus is like, not something that is on your radar as a kindergarten teacher, right? Like, even two months ago, that wasn't something I was considering in my like general teaching experiences. And, and to a degree, right? Like, that's not what we signed up for. We didn't sign up to understand neuroscience, we didn't sign up to experience this.

world of teaching with a lens of how the brain is impacted by kids' lives outside of school. But in a lot of ways, it's the reality of what we're facing. And by understanding these impacts, we can better serve the children in our class.

Ruth Ayres (09:46.24)

Yeah, I know as an adoptive mom and reading a lot about just what happens to the brain and trauma. So I have four kids and three of them we adopted as older kids from foster care and they had experienced significant trauma before they arrived in our home. And sometimes that research would be really disheartening to me.

And so I think like there's this understanding of there's damage and the brain is able to change and adapt. like the truth is, that we can heal brains back some parts of the brain. And the truth is, is there's some things that kids are going to have to do for the rest of their lives to compensate for that damage that has been done. And so.

think as you were researching the hippocampus , was connecting things for you. And I'm really excited. Actually, next week's episode, we're going to talk about some of those trauma responses. So now that we need to know all about the hippocampus , but some of these things that we're seeing that kids are doing, that sometimes we think they're doing because they're willful, are actually trauma responses. So super excited about that upcoming conversation.

created kind of a hippocampus sheet, like a one-sheeter for us, right? Which I'm so excited that we get to share this with listeners.

Becca (11:17.18)

Yeah.

Becca (11:23.987)

So as I was making my sticky note chart on the wall in your dining room, I was kind of organizing ways that different parts of your brain are impacted by trauma and then how behaviors present because of that damage. And I focus on four different parts of the brain, the amygdala, the emotional center, the hippocampus, the memory center.

And then the prefrontal cortex, which is like the decision making center and neurotransmitters, which it explains better in the one pager than I can do in my words right now. and then how each of those are impacted differently by trauma and how you might see certain behaviors that are linked back specifically to a shrunken or damaged hippocampus or a more

an enlarged amygdala or misfiring neurotransmitters, and how then you can intervene to support kids and healing, right? And like you just said, trauma changes the brain, right? It can cause true damage to the brain, but healing also changes the brain. And there are things that we can do to help our youngest and our oldest learners.

learn to compensate for some of the things that happen in their brain and eventually heal those things. And then other things, like you said, they're going to have to do the rest of their life. But if we can teach them as early as possible how to compensate for some of the ways that their brain functions differently, then we can then support them in making intentional healing growth as time goes on. And so the point of this one pager that I made was really to help you like visualize

what the different parts of the brain do, how they can be damaged, and what that might look like with students in front of you. And then to stop and think, like, I'm seeing this behavior. Where does it fall on this chart? Right? What part of the brain might be impacted right now? And then how can I help them? How can I come alongside these kids and see if these interventions work in order to best support them in being able to to learn and position them to learn?

Ruth Ayres (13:43.586)

Becca, I'm just so excited about this tool that we're giving to people because here's the thing, you know, we're not choosing the kids that are showing up in our classrooms, but parents are

sending the best they have. And we get to have influence on this group of kids. And I think what your HIPAA campus sheet is allowing us to do, right, as

This is a teacher who's not a neuroscientist. I'm not a mental health therapist. I am none of those things. I just want to teach kids to learn some things. This will help us position kids to learn. And I know for my own story, and the hill that I will die on is that teachers are uniquely positioned to help heal kids. And we do that when we position them to

Becca (14:21.075)

Yeah. Yeah.

Ruth Ayres (14:41.73)

learn and this is one of those tools that I cannot wait to get my hands on it to be able to share it with as many people as possible because it's giving teachers this just one more way to feel like I can I can help heal a brain back and that is that's just not a slight thing it's a really important thing that we get.

to So I'm just really excited. I can't wait to hear from people as they're using it because I think it's going to be a real true game changer in feeling like I can actually do something that's making a difference, a really big difference.

Becca (15:29.619)

That's my hope, right? I'm hoping that like you feel just as excited out there listening at the idea of you have an impact, right? And whether the children in front of you are one, two, three, or four, or 13, 14, 15, 16, you get to have an impact on their healing journey. And you get to know you're making an intentional effort to help.

And that's what we're all trying to do, right?

Ruth Ayres (16:00.59)

Yeah, so people can pick that up. We'll put a link in the show notes. It's at stickyhope.com episode 13 and you can pick up that hippocampus one-sheeter there.