Therapy Chat Episode 335

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[00:00:00] **Laura Reagan:** Therapy Chat Podcast Episode 335.

[00:00:04] **Announcer:** This is the Therapy Chat Podcast with Laura Reagan LCSW-C. The information shared in this podcast is not a substitute for seeking help from a licensed mental health professional. And now here's your host, Laura Reagan, LCSW-C.

[00:00:37] **Laura Reagan:** Today's episode is sponsored by Trauma Therapist Network. Trauma Therapist Network is a platform for finding a trauma therapist, learning about trauma, and understanding about how trauma shows up in our lives and what the healing process can look like. Go to www.traumatherapistnetwork.com to learn more.

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[00:01:31] Welcome back to Therapy Chat. I'm your host, Laura Reagan. Before we get into episode 335, I wanted to tell you a little bit about what is ahead.

[00:01:41] Just a couple quick things. One thing that podcast listeners may not know, but people who subscribe to my email list have heard is that I'm transitioning away from doing one-on-one clinical work with clients right now. So, I can focus on my [00:02:00] family. Both of my parents are rapidly aging, and I need to have the flexibility to visit with them in another state, and or attend to my own feelings as their health declines. So, I sadly will be ending my work with clients June 30th. So that's the space I'm in right now is that I'm in that transition with my clients. Some have already transitioned on to working with their next therapist or terminated if they were ready to be finished with therapy, but that's happening.

[00:02:40] And as sad as it is, the positive part of that is that I'll be, I'll have the time and space to focus more of my attention on Therapy Chat and on Trauma Therapist Network. So right now, Trauma Therapist Network takes up a good amount of my attention, but I don't feel like [00:03:00] I'm able to give it as much attention as I want to, to really build out what it is, the offerings like, the courses that I'm going to be creating and more content for the members. We have the weekly calls now and we're doing the quarterly calls that are a larger networking call, but I have a lot of ideas about ways to come together and support one another, learning together through Trauma Therapist Network. And when I'm no longer working with clients directly, I'll have more space to be able to focus on that.

[00:03:37] I'll still be offering clinical consultation to therapists and training and presentations, and I'm not disappearing and I'm not discontinuing being a therapist, but I'm dropping my caseload for now. Hopefully when the time is right, I'll be able to return to it when I have more emotional space and capacity to hold space for [00:04:00] other people in that way.

[00:04:02] So like I said, that's going on, that's kind of in the background here. And then also, I'm collaborating with Erica Shershun who you heard earlier this year, the author of Healing Sexual Trauma Workbook. And she's my friend and colleague-someone I highly respect, and we are going to work together on one or maybe more, courses, related to healing from sexual trauma.

[00:04:31] So I'm really excited about that too. And with that, you'll be hearing more about sexual trauma later this year. It's something that people have been asking me to talk more about. And I have so much to say about that. So, but I'm also excited to be bringing you this fall regarding sexual violence and sexual trauma I had a beautiful interview with Zabi [00:05:00] Yamasaki recently. I cannot wait to share that with you. It was just so she's a delightful person and just has a really gentle presence that feels good to be in contact with. So I hope you'll enjoy listening to that.

[00:05:15] I know the topic of sexual violence is not something that people like thinking about, but if you're a therapist who's working with people who've experienced sexual trauma and you likely are, because it's so common, you really need to know how to work with survivors in ways that are sensitive to their specific needs. And it's not something that we learn in grad school. I wouldn't know if I hadn't worked in a sexual assault crisis center, starting 20 years ago. It's something that's significant for all of us to know about, because even if it never happens to you, and if that's your story, I'm actually so happy for you that you haven't been through that. [00:06:00] But unfortunately, someone, you know, has. Someone you care about has, and it's really important to understand how people are impacted and how to support them. So that's that.

[00:06:12] Just a little thumbnail sketch about what's coming up in the next few months. There's much, much, much more to say, but for now, I'll just give you a little teaser on that and now let's talk about this week's episode.

[00:06:27] This episode that I'm replaying today is from a couple years ago, I interviewed Donna Jackson Nakazawa and she's a science writer, an award-winning journalist, and internationally recognized speaker who explores the intersection of neuroscience, immunology, and human emotion. She focuses on

translating emerging science in ways that help people who have chronic conditions find healing.

[00:06:52] And that is her story. So, she tells us about her experience and talks about some of her other [00:07:00] books. And then she talks about a very interesting type of brain cell that plays a major role in illness and healing. So it's very interesting. And if you like neuroscience, you will like this. I really appreciate how Donna can explain these complex subjects in very down to earth, understandable ways, so I hope you'll enjoy listening. And we're going to continue talking about neurophysiology and trauma in the next few weeks so stay tuned. And as always, thank you for listening to Therapy Chat.

[00:07:39] I do want to remind you that Trauma Therapist Network membership is reopening in July for trauma therapists. So if you're a trauma therapist and you want to join our membership community where we have weekly live calls with me, focusing on self-care, case consultation, Q and A and [00:08:00] training, get on that waiting list. You can find the link in the show notes. Signing up for the waiting list means that you'll be the first to know when registration opens, but you don't have to be on the waiting list to sign up. So you can just keep your eyes out for the announcement that registration is opening in July. Talk to you soon.

[00:08:23] Hi, welcome back to Therapy Chat. My guest today is someone who's done research and writing about autoimmune disease that I think you're gonna be fascinated to hear about. My guest is the author of the new book: The Angel and the Assassin: The Tiny Brain Cell that Changed the Course of Medicine. I'm speaking with Donna Jackson Nakazawa.

[00:08:44] Donna, thanks so much for being my guest on Therapy Chat today.

[00:08:47] **Donna Jackson Nakazawa:** Thanks so much for having me. It's great to talk to you, Laura.

[00:08:51] **Laura Reagan:** Yes. I'm so excited that we could make this work. So let's just start off by you telling our [00:09:00] listeners about who you are and the work you've been doing.

[00:09:03] **Donna Jackson Nakazawa:** Well, I'm a science journalist, which means that I try to translate work that's coming out from the scientific field into language that really simply put, just helps I hope to ease human suffering. I'm the author of six books, including: The Autoimmune Epidemic, Childhood

Disrupted, and as of January 21st, my sixth book will be coming out The Angel and The Assassin.

[00:09:34] **Laura Reagan:** It's an exciting title. It's it almost sounds like a spy thriller.

[00:09:39] **Donna Jackson Nakazawa:** Well, writing, it kind of was because I was following the story of this very enigmatic cell in the human brain called microglia that we only now in the past five to seven years, really understand its function and the discoveries around this cell, as [00:10:00] I began to follow the story of its discovery through labs at Harvard, and University of Virginia, and Mount Sinai Medical Center, are really completely changing our understanding of the brain.

[00:10:14] **Laura Reagan:** Yeah. It's amazing the way the field of neuroscience has changed so much and it's wonderful, but I'm really wondering, how does this microglia is the emphasis more on the "glia"?

[00:10:30] **Donna Jackson Nakazawa:** Well microglia. Yeah, you can say it like that. Microglia are one of four little types of glial cells, but yep. Go ahead.

[00:10:40] **Laura Reagan:** Yeah. So how does that fit in with health?

[00:10:46] **Donna Jackson Nakazawa:** Well, I think I have to step back a little bit and just explain our understanding of the brain and the immune system. And this has such a profound effect on our understanding [00:11:00] of autoimmune disease and the relationship between autoimmune disease and brain related health disorders.

[00:11:07] And it has a profound, sheds a profound light on our understanding of the relationship between trauma, and disorders of the brain. So let's just step back though, and frame this, that for the past seven years, the fields of medicine and psychiatry have been facing a huge paradigm shift. And that is that over the past century, it's categorically been agreed that the brain was not an immune organ. So any of your listeners who have autoimmune disease know that their body is ruled by their immune system, right? If you have too many environmental hits, whether they're infections or too many stressors, or different pathogens or environmental chemicals, these can in combination start [00:12:00] to trigger shifts in the body's immune response, and that can lead to inflammation, and it can lead to autoimmune disease. And that's because little cells in our body called macrophages, which are really white blood cells, they morph, and they begin to destroy or inflame healthy tissue. And anyone with

autoimmune disease knows how that works and knows that's really called friendly fire, but it's been believed for a hundred years. And really, since the days of Descartes, the philosopher for 300 years, who said 300 years ago, created the philosophy of mind- body dualism that the brain and the body were functioning as church and state entities and that the brain was not ruled by the immune system. In fact, the brain was the only organ in the body, not ruled by the immune system, but then seven years ago, a series of pretty mind-blowing discoveries [00:13:00] in a number of labs, turned that completely on its head.

[00:13:04] And that all comes down to our novel understanding of the form and function of this little cell called microglia. And for since the 1920s researchers thought that microglia were this tiny cell in the brain, and that's why the micro is in their name, right. They're micro, tiny, was just this boring housekeeper cell that carted away dead neurons and catered to the needs of neurons the way an entourage will cater to the needs of a movie star. So researchers just ignored them. They just didn't get the kind of research dollars that neurons got. Neurons were the flashy darlings of the scientific world. Then in 2012, researchers at Harvard discovered that immune cells are not robot-like housekeeper cells.

[00:13:59] They [00:14:00] are in fact, one of the most powerful immune cells in the human body and they reside in the human brain and in the same way that white blood cells govern our body's health, microglia, the white blood cells of the brain, govern our brain health for good or ill from cradle to grave.

[00:14:22] So just as I described, autoimmune disease in the body can set in when white blood cells or macrophages detect that something's going off kilter again, that could be a plethora of emotional stressors or toxins or infections. In that same way, when microglia, the white blood cells of the brain are overactivated when there are too many stressors, they morph in two big pack man-like cells, and they begin to eat away at [00:15:00] synapses in the brain.

[00:15:01] When this research first came out in 2012 at Harvard, researchers could see the belly, the little synapses material of synapses inside the tiny belly of microglia cells. And this is really fascinating because it solves an age-old mystery, which is this. Let's take it back to childhood trauma.

[00:15:28] We know that in individuals with childhood trauma, and as I wrote in my book, Childhood Disrupted, begin to show a lack of synaptic connectivity in key areas of the brain. And we know that those areas of the brain when they go down, when those synapses go down, that sets the stage for common brain disorders, including depression, anxiety, cognitive disorders, behavioral disorders, mood disorders, and later in life Alzheimer's, but [00:16:00] it's been

a mystery of science as to how it is that those synapses are sculpted away and why they are sculpted away and why synapses go down and the brain goes dark in certain areas as a result of trauma. Why was that happening? Well, Microglia these angels and assassins of the brain give us that answer because when inflammation is high in the body or when stressors or traumas, cause the body to go into fight flight freeze in the face of ongoing threats or chronic unpredictable stress, that causes the immune response to pour out a lot of chemicals and hormones that result in inflammation. We know that we have millions of studies on this, not millions but hundreds.

[00:16:53] And for instance, Yale researchers found that individuals who had experienced a great [00:17:00] deal of maltreatment and childhood showed changes to areas in the DNA that oversee the genes that manage the stress response and that these genes were turned on in such a way that it created a plethora of stress hormones in these children's bodies, as they were growing up and into adulthood, setting the stage for inflammation and disease across the lifespan.

[00:17:31] So I've spent years writing about that and lecturing about it. But there is remain this amazing mystery, which is how does that then translate into synapses in the brain going dark and different diseases of the brain being generated. And microglia give us that answer because microglia are functioning as the immune cells of the brain.

[00:17:56] They are the resident immune cells of the [00:18:00] brain. And when an individual is going through a plethora of stressors and that would include childhood trauma. And this enormous burst of inflammatory chemicals are corcing through the body and the body is marinating in inflammatory hormones and chemicals, and this changes the genes that oversee the stress response in ways that keep this cocktail of stress hormones coming, that changes the immune system of the brain in ways that cause microglia to get overactivated and they begin to eat away at synapses. We call this neuroinflammation.

[00:18:47] **Laura Reagan:** Whoa. So neuroinflammation is when synapses are actually being eaten away by immune cells in the brain, by the microglia.

[00:18:56] **Donna Jackson Nakazawa:** That's right. Now microglia also [00:19:00] spit out neurotoxins when they're overexcited and unhappy they also spit out neurotoxins, but this raises a really interesting point. And that is that in the body, we think of inflammation as being red, hot, painful, and swollen. Right? That's the clinical definition of inflammation.

[00:19:21] So this is another part of the reason that for centuries, we've missed that the brain can face inflammation and we've missed the true role of these cells, because imagine this. Early anatomists are looking at the brain and comparing it to other parts of the body. And let's say that you are hanging a picture in your house, and you hit your thumb and your thumb immediately becomes inflamed. It becomes red, it becomes hot, it becomes painful, it becomes swollen. It swells. Well anatomists would look at the brain and think, well, this can't be an immune [00:20:00] organ because there's a skull, right? And so if the brain were going to swell with what we think of as inflammation in the body, where would it go? Caveat here. And that is that in serious traumatic brain injury, the brain can swell. And that's why, a surgeon has to go in and drill a hole in the skull, but that's very, very, very, very rare.

[00:20:21] In the brain, neuroinflammation is this process by which immune cells begin to over sculpt the brain synapses and connections in important areas of the brain that help us to think, and have clarity of mind, and feel good, and have a good mood state in what we call the connectome of the brain and connections between say the amygdala, the fear center of the brain, and the hippocampus, where we store our memories and process our emotions, those connections we can see [00:21:00] aren't as robust as they need to be. And I'm hoping that in this book, The Angel and the Assassin, I connect the dots in a way that solves this great mystery of medicine, which is why is it in one individual that health who has an autoimmune disease in the body, that we will also see a shift in synaptic connectivity in the brain.

[00:21:29] And the answer turns out to be kind of scary and that's because of microglia. But let me also say that this is really great news, because for a long time, the fact that we haven't understood this has held us back in terms of how we look at disorders of the mind. And now that we have this science, we are seeing a paradigm shift, a sea change start to [00:22:00] happen in the psychiatry and medicine, which is taking this research into account in pretty exciting ways.

[00:22:08] I want to talk about one other area of research that is pretty mind blowing. And that is that in 2016 researchers who I follow in the book as they make these discoveries and tell us the import and the impact of them, at the University of Virginia also discovered something extraordinary. And that is a piece of our anatomy, a part of our anatomy that we never knew existed, until literally three years ago. And at the University of Virginia researchers found that there is a kind of a pipeline- immune vessels that cross from the body and rise up from the body, into the area surrounding our brain, technically, known as the meningeal spaces. And this means that the brain's immune [00:23:00]

system, microglia in the brain and the immune system in the body, what we're always talking about with autoimmune disease and with childhood trauma, these two immune systems are in constant conversation. They're really functioning as one system. And when something affects the body's immune system, it also changes the brain's health. And for me as a science journalist, I saw that this extraordinary research wasn't really being covered. And I like to just kind of stand on the mountaintop and talk to all the different researchers in a new emerging field and connect those dots and hopefully synthesize for the reader, what this means for our understanding of the brain and brain related disorders and how it might really offer us extraordinary new hope for the future of medicine and for patient suffering. [00:24:00]

[00:24:00] **Laura Reagan:** Yeah, this is, it sounds hugely... it sounds monumental.

[00:24:05] **Donna Jackson Nakazawa:** It's monumental. Textbooks are being rewritten. I mean, medical schools are rewriting their curriculum based on our understanding of this cell.

[00:24:15] I mean, to me, it is one of the most paradigm shifting and powerful stories in the history of medicine and it really promises to alter our understanding of how we can transform human health and repair the brain in ways that we could not previously have dreamt of before this science came voiced on and I feel as a science journalist, it's really my responsibility to help close the gap between what is happening in labs and what's happening in the patient clinic. The scientific philosopher, Thomas Kune famously said it takes 20 years from the [00:25:00] lab bench to the lab coat, in the clinic. And I feel like that's too long.

[00:25:04] Yeah. I feel like patients really need to know this now. So, it reframes our understanding of autoimmune disease in the body of how childhood trauma not only affects the body, but affects the brain, and how we might really get in there and use this science to change how we approach healing.

[00:25:26] **Laura Reagan:** So, can I ask you a couple of clarifying questions?

[00:25:31] **Donna Jackson Nakazawa:** Yes, you know, and I'm just going to tell your listeners an inside baseball thing. And that is that, this book comes out on January 21st, 2020, and I probably have a dozen podcasts already that we'll be doing in the next two weeks and many more after that and book tour and all of those good things.

[00:25:53] And so, but I think it's fun for them to know if it's okay with you. You can always cut this later. [00:26:00] This is the very first time because you and I are doing this interview now two months before book pub. It's my first time talking about my new book.

[00:26:12] **Laura Reagan:** Wow.

[00:26:12] **Donna Jackson Nakazawa:** So please, please, ladies and gentlemen, please be kind to me if I am finding my way. I spent two and a half years writing, going to labs, being a fly on the wall, reading thousands of research papers, writing, and revising fact checking and all of that. I'm a real paper and pencil girl. I've been doing this for a long time. I work by myself. I'm the one always asking the questions to the researchers and individuals I follow and whose stories I tell.

[00:26:46] So it's my first-time answering questions and trying to put this book in verbal terms, or what we call sound bites in a way that is working for the listener. And so dear listener, [00:27:00] please be gentle with me I'm finding my way.

[00:27:03] **Laura Reagan:** Well, so far, you're speaking beautifully about this and this isn't like an attempt to stump you.

[00:27:10] So if you just can't answer whatever, but I doubt it because really what I wanted to ask is some things to just bring it to where those who are listening, whether it's someone who has an autoimmune disorder, which I know many of our listeners do, whether general public or therapists and for therapists to understand sort of how this relates to who is sitting in their offices with them.

[00:27:38] I just thought I would ask to clarify a couple things. And one is, I know that you've written about autoimmune and autoimmune disease and childhood trauma for a long time now and you know, that work very, very well. And I know that there's also from your books, I know that there's a [00:28:00] personal connection with that for you.

[00:28:02] I was wondering if maybe you would be willing to talk a little bit about how this information that's new about microglia cells is relates to an autoimmune disorder, like for example, MS or Guillain-Barré.

[00:28:24] **Donna Jackson Nakazawa:** Sure.

[00:28:25] **Laura Reagan:** I don't know if I pronounced that right, but

[00:28:26] **Donna Jackson Nakazawa:** Yeah, Yeah. Guillain-Barré. Yeah, sure, sure. Well my readers know that between 2001 and 2005, I was in and out of a wheelchair and hospital beds with Guillain-Barré and my case of Guillain-Barré was really confusing to my doctors. For two reasons, I got better. And then I got much worse. And demyelinated a second time and spent six [00:29:00] months just learning to put one foot in front of the other. And miraculously, my myelin sheaths repaired or as my neurologist says enough for me to live a good life, I'm not going to run a marathon. I can't really run across the street if the traffic light is changing too quickly, but I live a really good life. And I do go to physical therapy twice a week and use a combination of many techniques to keep my nerves talking to my muscles. It's not a perfect thing, but I am no longer in a wheelchair and for that, I am grateful every time I go up the steps because those four and a half years were very difficult. And the other reason my case is unusual is that I also developed a loss of small fiber nerves, which are different from the Myelin nerves. So there are a whole lot of things and those have not repaired completely.

[00:29:55] And that can also be difficult leading to different types of neuropathies, enhanced [00:30:00] [inaudible] and that's different than Guillain-Barré. I have autoimmune issues with my bone marrow, and I think I'm forgetting a few things, but suffice to say, I know autoimmune disease, autoimmune diseases also run in my family.

[00:30:15] There are several people in my family with poor struggling with autoimmune diseases. And my father died from compilation of autoimmune diseases, including inflammatory bowel and rheumatoid arthritis. So, we take autoimmune disease pretty seriously here.

[00:30:35] **Laura Reagan:** Mm-hmm

[00:30:36] **Donna Jackson Nakazawa:** and I care that for the years that I've been a science reporter, it has taken so long for obviously when I wrote the autoimmune epidemic for understanding that our body was in this moment to moment dance with our environment in ways that could change the function [00:31:00] of our immune system for good or ill and I likened it in that book to what I call the barrel effect.

[00:31:08] Our immune system can handle a lot, but across evolutionary time, as we've put many more things in the environment that taxed the immune system, as we deal with a plethora of modern, emotional stressors, many different things, chronic unpredictable stressors and toxins in our environment and novel pathogens can combine in ways with our immune system and in a

world that is more toxic in terms of chemicals, but also more hygienic in terms of taking away a lot of familiar pathogens that our body used to be familiar with. Our immune system is confused, and we seem to be outpacing our ability, our evolutionary ability, to keep up with the rapid changes in our environment. And then in childhood [00:32:00] disrupted, I took that to another level and looked at how chronic unpredictable stressors in childhood can turn on the immune system in negative ways. And so, I care that there is this science that shows that these same things are happening in the brain. And there are several women in my extended family whom I love and admire deeply who face what we think of as genetic mental health disorders, and they suffer with autoimmune concerns as well.

[00:32:38] And I, as a writer will always try to close the gap between the latest neuroscience and what I think patients need to know to find healing and relief. And I think of these women I love as I write probably more than I think of my own history. And I thought of those women as I wrote this book, but [00:33:00] more broadly speaking, I don't know if your listeners are 50/50 in terms of identifying female, identifying male.

[00:33:09] But I know from 20 years of lecturing and teaching at universities and workshops and writing books and doing book signings and interviews that women are struck most by these illnesses. And I know statistically that depression, and bipolar, and autoimmune disease, and Alzheimer's, strike women at three times the rate of men.

[00:33:33] And in fact, I have an entire chapter in The Angel and the Assassin where I write about what we know about microglia in light of the female immune system and how this helps our understanding that the female immune system functions slightly differently in response to our environment. And I see this book, The Angel and the Assassin, honestly, from a feminist [00:34:00] perspective, I think I see all my work from a feminist perspective, which is not to say that I don't also engage wholly with readers who identify male and, and who are incredible supporters of my work. But I do think it's important to note that these disorders strike women at three times the rate of men and boys, because the female immune system functions quite differently. We haven't studied that well. Science has ignored that in doing many of their clinical trials. And I guess I'm on a mission to sound a call to change how we view and approach mental health disorders as a society and in medicine for everyone. As I am also conscious that many of those who are suffering are women.

[00:34:54] Running a group private practice has been a challenging and rewarding [00:35:00] experience. And one thing that has made it so much easier

is Therapy Notes. Therapy Notes makes billing, scheduling, notetaking, and telehealth, incredibly easy. If you're coming from another EHR, like I did, Therapy Notes makes the transition incredibly easy importing your demographic data free of charge so you can get going right away. My team has found Therapy Notes very easy to learn, it's intuitive. The customer support is second to none. And that's one of the things that has kept me a Therapy Notes customer for several years now. Anytime I've needed to contact Therapy Notes for help with an issue I couldn't figure out on my own I've been able to get through to someone and resolve the issue within 15 minutes, 99% of the time. Find out what more than a hundred thousand mental health professionals already know, try Therapy Notes for two months absolutely free. Just click on the link in the show notes, or enter the promo code: "CHAT," at therapynotes.com.

[00:35:57] **Laura Reagan:** Yeah, absolutely. And it's [00:36:00] so frustrating that so many diseases have been researched more from the perspective of men's health and, put out there as being for everyone, but it really disregards or omits looking at the differences in women's bodies. And I agree with you and I don't, I think a feminist approach is not just for women it's for everyone.

[00:36:27] **Donna Jackson Nakazawa:** That's right. And that's right.

[00:36:29] **Laura Reagan:** Yeah, but I agree with you that it really matters. And especially, and anecdotally I'm no researcher, but anecdotally what I see most people I see with autoimmune disorders are female identifying. Your books indicate that it's much more common in women and, we're all worried about heart attacks and cancer to as things that are going to kill us, but autoimmune disorders [00:37:00] are more prevalent, for women.

[00:37:02] **Donna Jackson Nakazawa:** That's right. And when we take it into the realm of microglia, neuroinflammation in the brain, and individuals living for decades without relief from anxiety disorders, and depression, and mood disorders, I mean, the medications we have available now work for some patients, but not others. A third of patients don't respond at all. So, when we look at that, we look at the prevalence of these disorders in the population, and we see that so many are not finding relief. I think the imperative is on us to take this new understanding of the brain, and of microglia, far and wide, and see how it's changing the way in which researchers are looking at possible interventions.

[00:37:56] So I think, my mission is just to translate the science [00:38:00] in a way that puts, I think our shared humanity on the page and helps to ease human suffering. And throughout the book, I tell lots of stories about the researchers

and the patients to help bring the data and the science home, even for those who might not ordinarily revel in reading about science, because I think about that reader that you just talked about, that woman sitting in your living room, who has been suffering with lupus, or rheumatoid arthritis, or multiple sclerosis, or thyroiditis, or fibromyalgia, and who is also facing anxiety or depression and is not getting the help that she or he needs.

[00:38:46] **Laura Reagan:** Yes. Well, I'm grateful for what you're doing and I know you just listed many, but I'm wondering if you could tell us what microglia, which [00:39:00] disorders it really shows up in or how, where it plays a starring role.

[00:39:04] **Donna Jackson Nakazawa:** Great question. In the book, I every time it seemed like when you're writing a book, there's a saying that, you know, it's like working in the lottery office, everyone's winning the lottery. When you're writing a book, it seems like everyone is researching and finding a link to the thing you're reporting on because you're calling all those people and showing up at their labs and being a fly on the wall. So I was mind blown because when I started, I started with visiting and observing in a lab at Harvard, Beth Stevens lab.

[00:39:42] And there, they were looking at the role of microglia and they published a landmark paper in 2016 in the role of Alzheimer's. And from there, the next goal was to look at the role of microglia and psychiatric disorders. [00:40:00] And that took us into the realm of depression, anxiety, bipolar disorder, schizophrenia, others are looking at microglia and showing this microglial overactivation in autism. Others are doing research and showing the link between microglia being overactivated in the brain like white blood cells in the body in autoimmune disease. In Parkinson's, Glaucoma, I have a whole chapter where I was a fly on the wall at shock trauma at the University of Maryland, largely our most successful and important shock trauma center in the country. And at their research center, they're working with microglia in concussion. It turns out that when a kid is playing soccer and they have a concussion. The thing that determines whether or not their concussion will resolve and be a [00:41:00] mild concussion, as opposed to that concussion morphing into what we call post-concussion disorder and becoming an issue for years, comes down to guess what? Microglia

[00:41:13] **Laura Reagan:** Oh my gosh.

[00:41:13] **Donna Jackson Nakazawa:** Right. And so, at shock trauma at Star Research there, they're actually looking at microglia and they're able to measure

factors that microglia released in the brain after a concussion. And these factors, aspects of them are parts of them descend into the bloodstream and they can be measured.

[00:41:36] These particles can be measured and there are so many great hopeful places where microglial science is taking us. And one of them is that as we begin to learn to measure these levels of microglial activation and just a caution, that's not ready at your local doctor's office yet, there are lots of different things that have to be [00:42:00] perfected in clinical trials but they are using this in their research to look at different levels of severity of concussion, with the hope that A- it will help tell someone in a clinical setting, this concussion is more serious than we thought, because of course, remember, brain does not get red, hot, painful, and swollen neuroinflammation in the brain is this spitting out of microglial toxins and the loss of synapses. That's different. Hard to see. Can't see it. So if we can measure these microglial factors in the bloodstream, it tells us not only how serious something is, but whether or not treatments are working. Right. So a clinician would be able to look at these through blood tests, look at microglia, how active they are, how much damage they may be doing and judge, well, which treatments are we trying here that are working and that's gonna be [00:43:00] really mind blowing in the future.

[00:43:01] **Laura Reagan:** Yeah. It's mind blowing to hear about it now.

[00:43:06] **Donna Jackson Nakazawa:** It is.

[00:43:07] **Laura Reagan:** So something that, a question that comes to mind for me, because of the title of your book, you've talked about the destructive effect of microglia. So I get the assassin part, but why is it called Angel and Assasin?

[00:43:26] **Donna Jackson Nakazawa:** The good news? Yes. Thank you. I was just about to bring that up because it is pretty dark and, as I was researching it, well, you know, it's true of all my books, if your readers have read all my books, you know that the first, third of the book, if you're feeling like, oh, I didn't know that, oh my God, I had no idea. And you're like, whoa, this is pretty hard to read. This science is a little daunting. Imagine me in my office reading a thousand papers for one chapter and [00:44:00] feeling really the same way. And let me tell you what gets me through is knowing that after I've explained these associations and I've explained how this is working in the body, hopefully in a way that the reader can't forget and gives them a new understanding of their body's relationship and their brain's relationship with the environment and the world in which we live and with oneself, it's that I know that I'm going to also

take the reader into how this science will save us, and change medicine over time in a way that will give us a lot of new tools in the toolbox.

[00:44:42] So toward that end, there is really pretty amazing news emerging in the same way that our understanding of microglia tells us that the brain is really plastic, more plastic than we had thought responding all the time to the environment [00:45:00] around us. It tells us our brain is more plastic than we thought in positive ways. When we bring in positive interventions. I think of it this way. We know we have five senses. We sometimes think of our sixth sense as our proprioception, the way in which we see our body in relationship to space, but we really are thinking about the brain's immune system now as kind of a seventh sense and that everything that's happening to us, everything that we do for ourselves, every act of self-care, every way in which we work with our diet, and therapy, and a million other things, that changes our brain's relationship with the environment around us. So those are, that's just a general way of thinking about this, that our brain is our seventh sense, our brain's immune system, but to be very specific, because I know that as a [00:46:00] listener, I want someone to be very specific, I spent I guess two thirds of the book, following researchers and clinicians, as they were implementing treatments that worked to help reboot microglia and bring them back to their angelic role. So stepping back for a minute, microglia are The Angels and Assassins of the brain. When they're triggered, they take down synapses, they spit out neurotoxins, but their normal role in the brain Laura is to help protect our brain's synapses, our millions of neurons, our trillions of synapses in proper form when the brain is healthy and when the brain is having healthy brain waves and not over triggered by a plethora of environmental stressors, microglia [00:47:00] are really like a good doctor.

[00:47:03] They run around and, imagine them tapping on neurons, the way that a doctor taps on your knee to see if your, if your reflexes are working, is everything good here? Great. What do you need? Do you need more of this? Let's give you this. Do you need more of that? Let's give you that. They keep everything working to use an old-fashioned word in a super groovy way.

[00:47:27] And what researchers are finding are ways to bring microglia back to their angelic role so that they can be this good doctor of the brain. Another way of thinking of microglia is they’re really the empress of the brain. They are deciding how synapses will connect and how healthy the seventh sense, the brain's immune system will be.

[00:47:53] So I followed patients and followed clinicians who are using a whole [00:48:00] gamut of ways to reboot microglia and bring them back to what nature intended. And that is to be the good empress of the brain.

[00:48:09] **Laura Reagan:** Well, that's very, very hopeful, and very exciting.

[00:48:14] **Donna Jackson Nakazawa:** I think it is. I wouldn't write a book about it if I didn't think it was really going to change medicine forever.

[00:48:21] **Laura Reagan:** I can't wait to see what happens. And some of the new ways of intervening with I guess with the brain, with the brain's immune system to help heal. I can't wait to see what comes. And I can't wait to read your book.

[00:48:38] **Donna Jackson Nakazawa:** I'm so glad. Yes. January it's two months away. Well, I guess when your listeners listen to this, it'll be out.

[00:48:46] **Laura Reagan:** That's right. That's right. By the time they hear this, it'll be for sale.

[00:48:51] **Donna Jackson Nakazawa:** It'll be for sale. And let me just put a pitch in for your local community bookstore, call your local community bookstore [00:49:00] and order the book. They'll get it for you or go on IndieBound. Wow. I hope this doesn't sound too self-promotional, I'm really not trying to promote the book when I say this, I'm trying to promote the old economy. Yeah. So, I don't know if your listeners know this, but when I'm doing book signings and so on, we use independent bookstores and you can find your independent bookstore wherever you are by going to indiebound.com.

[00:49:26] Or there is a page on my website, which will take you to IndieBound and put in your zip code, and it will tell you your bookstore and you just click on that order the book through them. So, anyway, I like to support you and I are both from Maryland. I think we didn't tell our readers or your listeners that, yeah.

[00:49:47] **Laura Reagan:** Yeah. We're both in Maryland right now. Not in the same room, but not far apart.

[00:49:52] **Donna Jackson Nakazawa:** No. And you're very close to where I grew up. So, and I also have a dog coming to sit on my lap if anybody hears that. [00:50:00] All right, puppy. I see you. And so, we're in Maryland and there's so many great bookstores in Maryland. There's The Annapolis Bookstore

in Annapolis. There's A Very Likely bookstore in Westminster. There's the Ivy Book Shop, and a Bird in Mahan in Baltimore. And they, all you have to do is click and they'll order that book so fast and get it for you. And so, I have to put in a plug for the great bookstores within the great state of Maryland.

[00:50:30] **Laura Reagan:** Yeah. I'm all about supporting independent bookstores and I did not know about indiebound.com so I'm glad you mentioned that. But why don't you tell our listeners where they can find your website too?

[00:50:43] **Donna Jackson Nakazawa:** Oh sure, yes. I'm at donnajacksonnakazawa.com and that is n a k a z a w a so donnajacksonnakazawa.com and on [00:51:00] Facebook. You can join me for discussions at Donna Jackson Nakazawa Author, at Facebook. And on Twitter I'm Donnajacknak. And what else? Instagram. Donna Jackson Nakazawa and I think that's all the platforms that I participate in. So those are easy ways to find me. There's usually some kind of fun discussion going on, or you can find out where I'm gonna be for book tour.

[00:51:33] And, so when this airs it'll be January, be cold, it'll be snowing. Yeah. I'm excited.

[00:51:41] **Laura Reagan:** Yeah, me too. Donna, thank you so much for being my guest today. And I just wanna say about all those links and social network places to find you I'll put all of those in our show notes, but thanks so much for taking the time to talk with me today. I can't wait to share this with [00:52:00] everyone when your book comes out in January.

[00:52:02] **Donna Jackson Nakazawa:** I'm really excited and I'm glad you reached out. And thank you. Thank you for taking the time to ask me about this book. I feel like it's really important science.

[00:52:16] **Laura Reagan:** Thank you to Therapy Notes for sponsoring this week's episode. I do love Therapy Notes. It's such an asset to my business and makes my job as a practice owner and a therapist, much easier. Try today with no strings attached and see why everyone is switching to Therapy Notes, now featuring e-prescribe. Use coupon code: "CHAT," or click the link in the show notes to get two free months at therapynotes.com.

[00:52:37] **Announcer:** Thank you for listening to Therapy Chat with your host, Laura Reagan, LCSW-C. For more information, please visit therapychatpodcast.com