The Gut/Brain Connection

Tom O'Bryan, DC

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Rebekah Kelley: Welcome to the Humanized podcast, all about personalizing your health. I am your host, Rebekah Kelley. Today I'm thrilled to have our guest Dr. Tom O'Bryan on the show, and we'll be discussing the Gut/Brain Connection. Before I introduce Dr. O'Bryan, I want to remind everyone to subscribe and get all of the variety of casts in audio, video and transcription at HumanizedHealth.com. I'd also like to thank our lead sponsor, Village Green Apothecary, at MyVillageGreen.com.

A little bit about Dr. Tom O'Bryan. He's a recognized world expert on gluten and its impact on health. He's an internationally recognized and sought-after speaker and workshop leader, specializing in the complications of non-celiac gluten sensitivity, celiac disease, and the development of autoimmune diseases as they occur, inside and outside of the intestines.

Thank you so much for being here with us.

Tom O'Bryan: Oh, thank you. It's a pleasure. Thank you.

Rebekah Kelley: So tell us about some of the ways the gut and the brain communicate with each other.

Tom O'Bryan: Oh, my goodness, how much time do we have? [Laughs] The first way that the gut and brain communicate is that the bacteria in the gut, they're just like your muscle cells – you exercise too hard, you're sore from the lactic acid and that irritates the muscles. That every cell has an exhaust, when it works. The bacteria in your gut have an exhaust, it's called the metabolites of the bacteria. And over one third of all the small molecules in the bloodstream are the metabolites from the bacteria in the gut. It's, what? One third of everything in the bloodstream is the exhaust from the bacteria in the gut? Yes. Why? Well, that's the million dollar question. And it turns out that the bacteria in the gut – now here comes a geek word – *modulates* how the brain functions. Now, what does that mean? Modulates means you have your hand on the steering wheel, you're driving down the road, and if you turn the steering wheel five degrees to the right, 50 yards down the [road]... you're off the road! So "modulates" controls the balance of brain function, that the gut microbiome controls the balance of the brain hormones called neurotransmitters that your brain makes, that's regulated or modulated by the gut microbiome. That's that first way.

The second way is that... we learn this with Parkinson's, and the first studies came out about 2008, 2009, that Parkinson's patients, their disease starts 20, 30 years before they ever have a symptom. And it starts in the gut. That the misfolding of these proteins called alpha-synuclein, the twisting of these proteins occurs from the bacteria in the gut, too much of the wrong bacteria, bad bacteria. And this misfolded protein goes right through the walls of the gut into the tissue inside, and they grab onto the nerves in the gut and they creep up the nerves, neuron by neuron, like the itsy bitsy spider went up the water spout, that they creep up neuron by neuron. They don't go out to the side. This misfolded alpha-synuclein just goes up the neurons

back into the spine, up the vagus nerve into the brain. And then it gets in the brain, and this misfolded protein has a magnetic pole to the area of the brain. It accumulates there, causes inflammation. Eventually the inflammation kills off brain cells. Here comes Parkinson's. So the bad bacteria in the gut, 20, 30 years before symptoms are producing the nasty that we all know is involved with Parkinson's, alpha-synuclein. So that's the second way.

The third way is if you've got a leaky brain. Now, most people have heard of a leaky gut, so let me give you the analogy there. Mrs. Patient, your guts, 20, 25 feet long, kind of winds around in the center there and the inside of the gut, it starts at the mouth, goes to the other end, one big, long tube. The inside of the gut is lined with cheesecloth. So when you're eating food, you swallow food. It's in the tube, it's not in the body. Think of a donut. If you could stretch one donut way out and you look down the center of that donut, that's what your digestive tract is. So when you swallow food, it's in the tube. It's not in the body yet. It's got to go through the walls of the tube to get into the body. That's absorption of our vitamins and minerals, our proteins and fats and all that. How does that happen? Digestive enzymes act like scissors to cut it smaller and smaller and smaller and smaller and smaller until the molecules are so small, they go right through the cheesecloth into the bloodstream. But when you get tears in the cheesecloth, now you get bigger molecules getting through the tear before that food's been broken down small enough to get through the cheesecloth. Those molecules are called macro molecules, big molecules. They get in the bloodstream and they activate your immune system, say whoa, I better fight that! So that's what leaky gut is. And that's why the leaky gut is the gateway in the development of all chronic inflammatory diseases.

Now what you need to know about this is if you've got a leaky gut, the tissue that makes up the boundaries of the gut that open and close to let in little molecules and nothing bigger than that, those tissues, it's the exact same tissue that surrounds the brain. And so if you create a leaky gut and that's the proteins called zonulin, and if you have antibodies to zonulin, zonulin is also in the brain, the barrier of the brain. So when your body's making a leaky gut, it's also making a leaky brain. Now, when you get a leaky brain, you get bigger molecules in the bloodstream that aren't supposed to be able to get into the brain, but now they get into the brain. And then the immune system of the brain, trying to protect you, activates inflammation to kill those invaders. Now you've got inflammation in the brain. And then you get collateral damage in the brain and brain tissue starts being affected.

So that's the process that goes on with Parkinson's and Alzheimer's and depression and anxiety and schizophrenia and bipolar disorder. That mechanism is similar in those different conditions. It just depends on what area of the brain is going to be affected. So the first thing you do with a brain dysfunction is heal the gut because when you're healing the gut, you're also doing the protocols to heal the blood-brain barrier.

Rebekah Kelley: Awesome. So the microbiome's impact on the gut that then goes to leaky brain, right? Leaky gut, leaky brain. Then that is impacting mental health, right?

Tom O'Bryan: Exactly.

Rebekah Kelley: How does it do that?

Tom O'Bryan: It's the inflammation in the brain. The first thing it does is the inflammation in the brain that causes the tissue not to function the way it's supposed to. And if you have too many of the wrong messengers modulating your brain function, you don't make enough serotonin or melatonin or GABA, or any of the brain hormones called neurotransmitters. They're just out of balance. And by definition, when they're out of balance, you've got brain dysfunction. It might be diagnosed as schizophrenia. It might be diagnosed... Just go on Google and type in schizophrenia and gluten and see all the studies that associate the two. And not every schizophrenia, but many of them, you put them on a gluten-free diet, they get better because gluten was the trigger for that person, creating the leaky gut and the leaky brain. And there's just so much to this field, you know, there's so much to learn, but first the big kahuna picture is that the gut has a direct impact on the brain.

Rebekah Kelley: Wow. So how can you then optimize this gut-brain connection?

Tom O'Bryan: By healing the gut. Hippocrates said it thousands of years ago, heal the gut. And now at Harvard Medical School, they're doing the same thing. They're teaching the gastroenterologists that all disease begins in the gut, and in the leaky gut. All disease begins in the leaky gut. So you have to learn, okay, do I have a leaky gut? And when you find out you do, okay, how do I repair the leaky gut? And there's a long process. It's not a simple pill to take, you know? You can't take a pill and keep living the life you've been living, expecting a different result, right? Something about how we're living our life, the food that we're choosing, the air that we're breathing, something is triggering the inflammation that's causing the leaky gut, the leaky brain dysfunction. So you have to investigate, you have to identify what is it that for me or for my son or for my family in general, what is it that's contributing to the dysfunction that we're having? And you... oh my God, really? Mold? Yeah, my mold test came back positive. My husband's mold test came back positive. But we don't have any mold. Yes, you do. Did your basement ever flood? Well, yeah, that was 3, 4 years ago. Yeah. And the drywall in the basement got wet and the backside of the drywall that you can't see, grew mold. And so you're breathing mold.

Those are the types of things you have to investigate for. Are there food sensitivities, are there environmental sensitivities, is there too much... My son got really sick when he was 8 years old and we were trying to figure out why is he so tired, why is he so anemic, what's going on here? He had elevated antibodies to fibrinogen. That is really rare. And fibrinogen is a good thing. But he had elevated antibodies. Where'd that come from? My gosh. And so I'm investigating, investigating. He had high mercury, and mercury was causing the antibodies to the fibrinogen, which was causing the anemia, which was causing the fatigue. Mercury! Where did the Merc... oh my God, really? Really? And back then, this was in early 90s, we were just hearing that tuna tends to have mercury in it. Now all tuna, almost all tuna has mercury in it, unfortunately, but

it's true. Back then, we were just hearing about this. And I realized, oh my gosh. When my son did something really good and he wanted a reward... what would you like Jason, this or this? And he always wanted to ride his bicycle up to the corner Subway and get a tuna fish sandwich, you know, a foot-long tuna fish sandwich. So he was getting that maybe once a week or something, I don't know, but it was the tuna fish that gave him the mercury toxicity.

My point is, the trigger in the outer world that's creating the inflammation in your body has to be looked for, investigated. That's what you have to do when you're dealing with a brain dysfunction problem. Where is the inflammation coming from?

Rebekah Kelley: Thanks Dr. O'Bryan those are really valuable insights. Dr. Tom O'Bryan can be found at www.TheDr.com. That's T-H-E-D-R.com. Let me remind you to subscribe and get access to all Humanized videos, podcasts and transcription, from all thought leaders on personalized health at HumanizedHealth.com.