

A Whole-Body Approach to TBI:

An Interview With Jeremy Schmoe, DC



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By MICHAEL DREGNI

“**Y**ou have to look at *everything* with people who have suffered brain injuries,” says functional neurologist Jeremy Schmoe, DC, DACNB, FACFN, FABBIR, of Minnesota Functional Neurology and Chiropractic in Minneapolis.

And by everything he means not only the brain but also whiplash or other physical ailments from the injury, eye-brain coordination, hormonal disruption, nutrition, even the microbes in a person’s gut.

We asked Schmoe about the whole-body functional approach to treating traumatic brain injuries (TBI), and here’s what he had to say.

Q&A

Experience Life: We hear in the news mostly about concussions and CTE in sports, but it sounds like more people are getting these mild traumatic brain injuries in everyday life?

Jeremy Schmoe: Yes, that’s a lot of what I see in my office. We do see professional athletes — and athletes of all different ages — but we see lots of slips and falls. You’re going to see people falling on the ice. You’re going to see skiing and snowboard accidents as well.

People hit their head on car doors and little minor things like that and they don’t even realize that they’ve had a head injury

or a concussion — and then they start getting these bizarre symptoms that don’t make sense.

EL: How do patients find you? How do they make that step?

JS: A majority of our patients are referred from other providers, and at this point, it’s a medical neurologist, it’s chiropractors, it’s PTs. . . . We’re normally not the first person that you see right after you’ve had an injury. Usually people will go to something like a [hospital] or TRIA or their chiropractor or an orthopedist or something like that, and will do the kind of wait-and-see and

rest, to see if they’re going to get better.

Commonly, we don’t usually see people until three months or six months or sometimes even years after their injuries, and I would say, on average, I’m probably the sixth or seventh practitioner that people see.

EL: What is unique about a functional neurologist’s approach?

JS: We look at balance. We look at gait. We look at eye tracking. Really what we do is we challenge the nervous system with different types of sensory inputs to try and activate the

brain to make changes to the things that we see are off. So with our examination, say, for example, if we see that with your balance you're falling over to the left, we might do an exercise to stimulate the left side of your body to just give your brain better awareness of where you are in space.

For the most part, if you go see your chiropractor or a PT or medical neurologist, he or she is going to know what to do to diagnose you with an injury, and where we come in is the rehabilitation.

We're looking for the deficits but then challenging the nervous system to make improvements in the deficits we see, and we try and do that and make changes to people's nervous systems quickly, so instead of just diagnosing, we're trying to make changes as soon as we can.

EL: What kind of tests might you do to diagnose the injury?

JS: We do what's called platform posturography, so we'll look at balance. We'll put people's heads in different positions, look at their sway patterns. We'll do video analysis and watch people walk, so we'll look at their gaits. Do they have changes, falling off to one side or the other? Changes in their stride length? Changes in their arm swing? We actually go really in-depth into what I call autonomic nervous system: heart rate and blood pressure — lying versus seated versus standing — is something that commonly gets off after concussions.

The next thing that we usually do is run what's called a VNG, or videonystagmography, and we look at eye tracking. We want to make sure that you don't have any spontaneous eye movements at rest, your eyes are steady, you can move

your eyes quickly when you need to, and you can tolerate motion. We actually use some technology to graph that information all out.

EL: So that goes far beyond the typical PERL diagnosis that EMTs and ERs use first thing.

JS: Yeah. If you're going in to your family physician, they're not going to really do much of that. They might look at balance and gait, but they're not going to really look into all your eye movements and look at your balance and gait and then come up with a rehab program for you right away.

EL: You also often see people a year or more after they've had a TBI, and you can still test and find these symptoms.

JS: Yes, we'll see people three years or five years later. We have one patient right now, and I first saw her 10 years after her auto accident. We were still able to make significant changes doing our rehab even 10 years after her injury and take her from barely being able to walk to walking, working with her for two years.

The nervous system is amazing. I mean, it's elastic. You can make changes to it. You just have to give it the right stimulation. If things are able to change, you should be able to monitor those changes with your testing, and make predictions if people are going to be able to get better or not.

EL: What kinds of things can these head injuries affect?

JS: Common things are like what I said with the autonomic nervous system: People will startle easily, have a higher resting heart rate. They'll have issues with their eye tracking.

They'll feel unsteady with their gait. Their spatial awareness and depth perception are off. Dizziness, nausea, head pain, vertigo, unsteadiness — those are common symptoms that we see in our patients. More emotional. Crying more easily is very common.

EL: Some of the mood disorders can be caused by hormonal disruption due to the head injury?

JS: Yes, one hundred percent. When you hit your head, the midline areas of your brain get torsions, and those are the areas that are very primitive, so you can have hyper-emotionality, you can injure some of the areas that affect your hormonal output, so adrenals and thyroid can be affected. We'll see people develop this whole metabolic cascade of symptoms after they've injured their brain, meaning blood-sugar dysregulation. I've even seen autoimmunity develop. The gut can get off.

After an injury, literally within a couple of days, your gut lining will start to be affected, and when that happens, now you have a brain injury, but now everything that you had going on prior to your head injury can come back to haunt you. So if you had an infection, if you had diabetes, sugar dysregulation; if you had Hashimoto's and thyroid autoimmunity; if you had just overall a very inflamed body with poor diet and poor fatty-acid intake and things like that, those things are going to affect how your brain heals from your injury, so that's what we see in our office.

If you can address the brain and you can improve the circuits in the brain, you can make changes to the gut. It's a bidirectional pathway, so by

improving the brain you can improve the gut, and then if you loop back around and then improve the gut even more, and work with anti-inflammatory diets and nutrition and getting vitamin D and magnesium levels stable and decrease the full-body inflammatory response, then your brain's going to heal faster. That's our idea.

EL: So looking at nutrition is part of your program.

JS: Yes. A hundred percent. We actually run labs on every single person we see with a head injury. So when they come into our office we'll do a really in-depth intake; we want to look at all the past things that you had going on prior to getting your head injury, so very in-depth intake forms, very in-depth history. And then our exam moves into a lot of looking at your autonomic, sympathetic and parasympathetic systems, so heart rate and blood pressure, and then we'll go through and we'll look at all the circuits, so we'll look at gait and balance and reaction times, and then on top of it, we'll run labs, look at all your blood chemistry and make sure that there isn't anemia, infection, inflammation, thyroid autoimmunity, vitamin D or magnesium deficiencies. Those can affect your brain health.

On top of it, we'll also look at what's going on with you structurally. Obviously, if you had a brain injury, you probably whiplashed your neck, and these symptoms can be coming from the cervical spine. We developed exercise and rehab programs to rehab the body, in addition to the balance and the eye movements and the nutrition.

You have to look at everything with people who have suffered brain injuries.

Especially when they're complex cases and people can't figure it out, we're kind of the guys that come in and try and pull all the pieces together, and that's where you end up making pretty amazing changes for people that nobody else can help.

EL: So what do you recommend that people do if they get hit on the head — should they go to a doctor right away?

JS: This is what I always tell people: Usually within a month, 80 percent of people are going to feel better, but feeling better does not mean that you *are* better because you have to get testing for your balance, your stability.

I personally think that people should have brain baseline testing. Everybody should have it. You should know how your balance is. You should know how quick your reaction times are, in case you get that injury, so then you have some documentation of what you looked like before and what you look like after.

That way, you can go back and retest and see if your symptoms are off, or if your objective testing is not where it needs to be.

Can you see what I'm saying? You can feel good, but feeling good does not mean that your nervous system is functioning at a hundred percent.

I think people should do pre-rehab. I mean, people should be doing strength programs. People should already be doing nutrition, working on their gut health. People should be doing exercises that involve eye tracking and spatial awareness, and I think people should be doing all that stuff before they even get these injuries. That way, if you do get injured, you already have a baseline and then you can go back and get rechecked.

The reality of it is, nobody is doing that.

Athletes do that. They have baselines, but your typical person does not have that.

EL: What kind of exercises would you typically have someone do for the eye coordination?

JS: Have you ever heard of Z-Health? It's a workout program that really looks at eye tracking with body movement and things like that. That's a good example of what people should do even before they get injured.

After you've injured your brain, we can come up with novel exercises for your body to help your balance, and that could be beneficial for somebody.

You also need to have appropriate eye tracking, gaze holding, be able to move your eyes quickly, so you need good visual reflexes to know where your head is in space, and then you also have a vestibular system, which is housed in the inner ear, which has different fluid, and fluid moves, and that gives your brain feedback about where your head is when your head is moving.

Really, what we can come up with is endless, so we can do exercises with your body, with your eyes, or with combinations of eyes, body, and inner ear. Coming up with exercises that use those systems are good, so I really love yoga. There's a lot of stuff out there on yoga for brain injury and rehab. If you look at Kevin Pearce's Love Your Brain program, he does yoga for traumatic-brain-injury survivors.

Then just working on reaction times of the eyes, and there's multiple different apps on the iPad, but I really think that people do need exams that are tailored to them. 🧘