



WEBINAR Q&A ON NEUROFEEDBACK



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My Background and How I Found Neurofeedback

Q&A

"Can daily training be too much if I have a chronic illness?"

"I understand one cannot get side-effects with NeurOptimal. But how come I get a headache after a session?"

"Are there any research done for ADD & ADHD and kids?"

"Are there any research available within NeurOptimal® on working with addictions?"



"What are the main differences between NeurOptimal® and other neurofeedback systems?"

- History of Neurofeedback
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- Follow up email with additional resources

Q&A Webinar

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MY BACKGROUND AND HOW I FOUND NEUROFEEDBACK

I'm Natalie Baker. I'll just say a little bit about myself so you have some sense of my background and then we'll launch into people's questions.

I am trained as a psychotherapist and have been in private practice in New York for 20 years. I'm also a long-time meditator and meditation teacher. About 10 years ago one of my meditation students asked me if I had heard of neurofeedback and he told me that it was this new technology that could really help people and brain patterns connected with all sorts of issues. I hadn't heard of it so my curiosity piqued.

Having a therapy practice with lots of people with post-traumatic stress disorder and anxiety and depression I was always looking for tools that I thought could help my client base. That started me looking into the wonderful world of neurofeedback, what then seemed like Frankenstein technology of hooking people up to wires and reading their brain waves.

I then did neurofeedback on myself and decided I was going to start with the NeurOptimal® system because, in doing research on it I spoke to a bunch of psychotherapists like myself, who had ventured into the world of neurofeedback and they had had really good experiences with NeurOptimal®.

Because it was a fully automated system I wasn't going to need to go back to school and learn how to “tweak” people's brains. I thought this was a good system for me and for the work that I did. I also really liked the fact that people could take it home and train at home.

Home neurofeedback made it also a less expensive price point for my clients so that also piqued my curiosity.

So anyway, I went off and did the NeurOptimal neurofeedback on myself and also sent a couple of my pretty traumatized, Complex PTSD clients to go and try it. We all had good enough results that I thought: okay, I should really bring this into my practice, for the benefit of my clients. That was about 10 years ago.

I started to offer people rentals as an alternative to doing neurofeedback in-office because there were lots of people who then wanted to train their family members.

One thing led to another and 10 years later we have a national home rental program. Sara St. John, who is a part of my team and runs the West-coast rentals and in-office sessions, is on the call here to help us facilitate. A couple years ago I became a sales representative for NeurOptimal® to help psychotherapists interested in exploring this technology, to help them along the path of learning about it.

Today's webinar is really an opportunity for anybody to ask questions they have about neurofeedback and NeurOptimal® specifically. I will do my best to answer...

"QUESTION: CAN DAILY TRAINING BE TOO MUCH IF I HAVE A CHRONIC ILLNESS?"

It's an important question for a lot of people because people with chronic illness are a large population very interested in neurofeedback.

I wish that there was a simple answer to that question but I'm going to start out a little bit bigger and then talk specifically about chronic illness and what it may mean to train “too much” or how frequently one should train.

HISTORY OF NEUROFEEDBACK

The NeuroOptimal® system is what I call the second generation of neurofeedback. The first generation of neurofeedback started out when computer technology was pretty clunky. The ability to capture and feed back to the brain its brainwave patterns is very much dependent on computer speed.

In the early days of neurofeedback, computer technology was not as fast as how quickly the brain is changing states, which is by micro-seconds. During the early years of neurofeedback you had an external trainer who would set protocols, taking either a diagnosis or a brain map and seeing what the individual's brain was like and how it was stuck in mal-adaptive patterns.

For those of you who are new to the brain's functioning; the brain is communicating electrically and chemically. With neurofeedback it is looking specifically at the electrical communication of the brain. One of the things we understand, and only in recent decades do we understand this about mental health, is that it's not just a mind problem, it's also a brain habituation problem! So when we talk about worry we are also talking about the brain being habituated to certain brainwave patterns that it does habitually that are not appropriate for the “here and now.”

What neurofeedback is trying to address is specifically that electrical habituation of the brain that produces the symptoms that aren't helpful and that we don't want. Neurofeedback is tracking the electrical activity and the electrical communication of the brain. We do that through putting EEG sensors on the sides of the head. (With protocol based systems they have more sensors than the NeuroOptimal system, but that's a kind of another topic and I don't want to deviate into the setup of different technologies.)

FIRST GENERATION PROTOCOL NEUROFEEDBACK

The way the technology works is it's capturing that electrical activity and then sending it into some sort of amplifier that changes that electricity into numbers and then those numbers go into some sort of software. In the early days of neurofeedback, the ability to give real-time feedback to the brain wasn't possible because we didn't have home computing systems that were fast enough. You had to have the external trainer setting protocols to sort of "nudge the brain" out of those brainwave patterns that were thought to be causing the symptoms and migrate that system so you can kind of think of it as like an operant conditioning taking place. We're trying to teach the brain to do different brain waves. So calm brain waves if it's in hyperactive brain waves habitually so that it can function more like a “normal” brain.

Then what happened with the second generation of neurofeedback, which is the NeurOptimal® system, is integrating the advances in computer technology with the neurofeedback software.

Dr. Val Brown, who was one of the co-creators of NeurOptimal®, could see back in the early days of neurofeedback, where everybody was sort of nudging the brain out and into different brainwave patterns, he could see that at some point computer technology was going to be fast enough that you could take out the middle-person.

Taking out the neurofeedback trainer setting the protocols and creating a system that was actually giving real-time feedback to the individual brain that that individual brain would see and use and self-correct, was the leap forward in design.

SECOND GENERATION NEUROFEEDBACK

This change is part of the NeurOptimal® system's understanding – that the brain will actually correct itself - but what it needs is good information in the present moment, so that's what the NeurOptimal® system is doing. It's a purely a feedback system and whenever the brain is going into a state of change and doing something, it creates a kind of electrical dance so when those electrical sensors on the side of the head, when they pick up through the the electrical impulse being changed into numbers and the software is looking for the numbers that signify state change. In that millisecond (there is music that's playing in the program) and right then there's an interruption in the music.

So then of course, the next question is why is it significant to interrupt music? How is that creating a transformation of my fear?

As animals we use auditory sense perception as a way to orient ourselves in our environment all the time. The reason we use auditory is because we can listen even when we're asleep. We can register changes in the environment and being able to stay safe, detecting danger, auditory sense perception is the best.

We're sending the brain, through its natural orienting response, the interruptions in the music and through that interruption the brain notices something, like a call to pay attention. In that milli-second it notices two events, first, what it's doing habitually or what it's about to do habitually and then second, what's happening in the present moment.

When the brain sees what it's doing habitually that it is not in alignment with the here-and-now. Being afraid is part of the stress response and what the brain is supposed to do when it's in danger. If we see "oh I'm in a safe environment", but I'm also about to go into hyper-arousal,[fight/flight] of a stress response, [the brain will register:] “Why am I doing that?

The brain is going to naturally want to shift out of that brainwave pattern and into a state that's in alignment with the here-and-now. What happens during a NeurOptimal® session is that the brain is given this feedback millisecond by millisecond so there are "corrections" happening during a session.

But then there's also the bigger picture of change, which is that we're actually wanting the brain to learn something new. This system is actually a teaching tool; "Hey brain, I want you to learn how to function in a more efficient and effective way." That's actually what we're providing the brain. What the brain ideally learns over a series of training sessions is how to get the "good information" to make efficient and effective decisions. So then the brain starts to do this, even when it's not hooked up to the neurofeedback system.

Going back to the question about "if I have chronic illness, can I train every day?" Again, what is the neurofeedback system doing? Well, the design is actually just like presenting a mirror so the brain can see over and over again what it's doing. Typically what happens is if the brain is tired, if we're tired, we ignore something so that's sort of the extent of what happens if we're "over training," the brain is just going to ignore the feedback. It's like I don't want to do it anymore! So there's no such thing when you're using the NeurOptimal system of I "over training" the nervous system because again we're just alerting it to pay attention and the brain will decide whether or not it wants to do anything with that information.

Now with chronic illness, it leads us into the next part which is the.... I wish I could give you a simple answer to this...The only thing NeurOptimal® is doing is it is giving the brain the opportunity to see clearly. See clearly pieces of information... We wanted to see [habitual brainwave patterns] so it can then use that to change itself.

What does the brain need to change itself? With chronic illness, if we have underlying conditions that are preventing the brain functioning at its best. Dr. Brown will often use the analogy of gravity.... The brain is designed to use its energy efficiently and effectively so the brain is going to want to improve itself when it gets the feedback from NeurOptimal®. Then the question is, "What would get in the way of that?" With chronic illness where we have sort of mystery factors that are affecting our ability to function fully right that can get in the way because the brain needs certain things in order to be able to function at its best.

If you have gut issues, and one of the things we've learned which is so cool is that if you have gut issues you can have mood issues, right? Neurotransmitters are produced in the gut that help the brain function. If there's something wrong with our gut and we're not producing neurotransmitters okay, well that that chemical piece that the brain needs might be missing. When people have a chronic illness and they ask me; "What can NeurOptimal do for me" I always come back to the stress response because whenever we have a chronic illness we tend to also have some some degree of stress and so to whatever extent the brain can come out of the stress response the brain will do that itself. It is a huge support because we know that the stress response and chronic stress amplifies whatever underlying conditions we also have because it negatively impacts immune functioning...

NEUROFEEDBACK AND STRESS

Why is neurofeedback so good for the stress response? Because the stress response is supposed to be what the brain does in imminent danger! Danger means in less than a minute, there's going to be bodily harm to this being. I should rev up or shut the system down and go into hyper arousal or hypo arousal - fight flight or freeze - to respond immediately to the danger and then come out of it and go back into regulation. That process stuck what chronic anxiety and depression. The brain assuming there's danger all the time when there actually isn't.

When the brain gets the opportunity from the neurofeedback to see it's safe....there is no imminent danger it will naturally want to correct that stress response. So any chronic illness that has some degree of stress connected to it, NeurOptimal® can support.

How often should you train? You can train daily. But what I say to people is listen to your body because one of the things that happens is the lines of communication between the brain's unconsciously automatic functioning brain, which is really the part we're training and the prefrontal cortex, conscious brain part, is that line of communication becomes clearer. I always say to people; "Listen to your body!" If you feel like you don't want to have a session today trust that instinct and maybe pass on having a session. But you can't "over train" because remember, the brain will just ignore the feedback if it is tired, and doesn't want to listen to it.

QUESTION: I UNDERSTAND ONE CANNOT GET SIDE-EFFECTS WITH NEUROOPTIMAL. BUT HOW COME I GET A HEADACHE AFTER A SESSION?

I was just chatting with a nurse practitioner who uses NeurOptimal® and she said regarding the headache. She said it's most often dehydration! She said that's the thing that she sees the most that comes out for people is that they're not drinking enough water and that's what's producing their headaches. I thought that was really interesting. But again, NeurOptimal® doesn't produce headaches because we're not adding anything to the system. But what does happen is awareness happens! Remember what I just said about going more of the line of communication? If the unconscious, that automatic functioning brain, can send a clearer message to our conscious selves then we are more likely to go out there and do the things that the brain needs to function optimally.

One of the really common things that happens with New Yorkers when they do a neurofeedback session is they come out and they go, "Oh my gosh! I'm exhausted!! That thing made me exhausted." And then I say to them, "how much sleep do you get a night?" They answer; "Oh, well, I get somewhere around five hours of sleep a night," and I say, "No, your system is showing you 'I'm exhausted'. Please sleep more!"

One of the things that I love about NeurOptimal® is it's shining a light. We're a system that needs all sorts of things to function optimally, right? So throw out the idea that there's like a "one pill wonder," but to appreciate that optimal functioning of the brain includes whole food diets, minimal sugar and alcohol if we can do that, proper sleep, exercise, laughter, time in nature, healthy relationships... all of those things help the brain! The brain is then going to start to ask for these other things that it needs.

QUESTION: ARE THERE ANY RESEARCH DONE FOR ADD & ADHD AND KIDS?

Two biggest areas that have been researched with neurofeedback are ADHD and PTSD. ADHD is because parents really don't want to put their kids on stimulants as as a first pass right off of helping their kids out. They're like; "Really? Is this the only thing that we can do for our kids to help their brains recognize they're doing the wrong thing in the present moment?"

So...NeurOptimal® is really a very helpful support for kids whose brains are stuck in that, you know kind of scanning mode, right when it really needs to be in a focusing energy. So most kids do really well with two or three months of training, multiple times a week. The biggest challenge or I would say the biggest obstacle is actually getting the kids on the system doing their sessions.

The thing I always say to parents is make it a reward. Let them play on a separate device with the volume off, or play a game with them, they can be moving around so long as you know their sensors are stuck to their heads. It's good to just check on them periodically--but to really just make it something that kids will agree to.

I would say that that's really the biggest obstacle and then the co-factor that I see the most is poor diet. Here's a kind of an example from a couple of years ago, which is we had a mom who was training her son and she was like "I'm not seeing any changes!"

That's usually when we put our detective hat on. The first thing with brain training for kids is that we talk about diet. So what is he eating?

Well, it turns out most of his diet was fast food, heavily processed foods and so, to her credit, when we said; "Hey, could you do an experiment for a couple of weeks and take him off fast food and prepare his meals for him and let him have really minimal sugar? and she did it!

When she changed his diet - poof! - we saw the changes. A poor diet can mask being able to see what the neurofeedback is doing in kids. Also, allergies and food allergies is another really common co-factor in focusing and agitation. Typically we don't have to address those unless the parent comes to us and says I'm not seeing any changes.

That's when we kind of do a deeper dive into what else might be going on. What are the potential other factors that are going on either health-wise or lifestyle-wise that would be getting in the way? So this is if someone is really seeing no changes and they've been training for a couple of months. Then I'd be like, okay, there's clearly something going on here and that's often when I encourage people to go and see a functional doctor or a holistic doctor who can do a really good blood panel to see what's happening with vitamin D and B and other factors that might contribute.

If someone has mood issues, for example, that would be my next step also looking at and are there any new major stressors? I had a fellow say to me that he wasn't seeing changes. I said to him as, I go through my questions doing this detective work and I asked if there was anything new and stressful in your life?

He said, "Oh I just found out a couple of weeks ago. I'm most likely going to lose my job." And I was like, "Okay... Well that is going to send what was here right on our anxiety scale up to here, right?" So the noise is louder. It's going to be hard to see the changes from NeurOptimal® when you have a very recent major stressor.

The list of things that I have people look into are: what are your sleep habits? What are your dietary habits? When was the last time you got a good, you know full workup including good blood work? What are your relationships like? Have any other illnesses?

For some people who have post-traumatic stress there can be kind of flare-ups of strong emotion but that's part of the system actually trying to work through. Because we're not linear, and part of the challenge is that we all like to think linearly, right? We like to think that if something is positive and beneficial we're going to see, if this is our graph, [showing a straight line going up on an angle] we're going to see a positive linear line of change, right? Gradual steady improvement.

But the brain is actually a non-linear system, which means when it changes it changes more like the weather, like the seasons. So we can get a dump of snow in March with freezing cold temperatures in spring that doesn't mean that spring is off and that we're not moving forward. No, that that's actually how a non-linear system changes, so one of the things I see with anxiety and and post traumatic stress symptoms is that there's definitely more like the the four seasons quality and that you can have things arise that are maybe what you were hoping to get rid of...But that doesn't mean that the system isn't working and that change isn't happening!

With people with PTSD sometimes what I say to them is, this might be the time to then go and do some very specific trauma work with the therapist. That it seems like there's a readiness for some bearing witness and working through [in psychotherapy]. Depending on what it is that the person came with to neurofeedback, I might send them in different directions in terms of finding out what is going on in the system?

QUESTION: ARE THERE ANY RESEARCH AVAILABLE WITHIN NEUROPTIMAL® ON WORKING WITH ADDICTIONS?

There is quite a bit of research, using earlier the protocol-based neurofeedback systems with addictions. Particularly, I think there was a researcher at UCLA who did in conjunction with UCLA using the Brainpaint system and that kind of launched the world of addictions to really connect with neurofeedback. There is somebody doing some research using NeurOptimal® for addictions but it's not published yet.

This brings me to the other topic with NeurOptimal®, which is that the creators went to the FDA specifically asking for NeurOptimal® to be designated not as a medical device but as a General Wellness Device because they wanted anybody to have access to their system.

They didn't want users to have to go through a healthcare provider because it's safe and non-invasive. It took a while but it was a few years ago in October 2018 that the FDA gave them the designation of a General Wellness Device. So there are people who are using it in the context of doing research and as a sort of a "treatment" for conditions but the NeurOptimal® system itself when they talk about it particularly, if you go the NeurOptimal website, you'll see that there is a lack of information about "treatment of disorders" and that's part of the FDA Guidelines when you're a General Wellness System.

However, if you do want to see what research has been done when you go to the NeurOptimal website. You'll get a pop-up window that says what country you are in if you click on "International" then you can see all the research. Because Europe and other countries don't have the same restrictions in terms of what NeurOptimal® can put on their website so you can have access to the actual research that's been done using the NeurOptimal® system with various conditions.

Going back to addictions, my personal experience of working with clients in psychotherapy who have addictions and are using NeurOptimal®. Is that it's so helpful in helping them stay regulated so that they can change their behavior and if they're working a 12-step program work that program because one of the biggest obstacles to addiction recovery is that it's not just an addiction right? There's usually trauma that leads to substance use to try to re-regulate the system. What can happen for people who are in recovery is then the trauma is there and they can be triggered, go up into that activated fight /flight anxious, or down in that depressive response and then get derailed and then want to use substances again to re-regulate themselves to come back into that zone of feeling safe and secure in the world. What the NeurOptimal® piece does is it helps their brain register safety. Stay more regulated, not so much of that fight /flight /freeze so that they can then do the trauma work. They can work their 12-step program and they're less triggered. They don't go as high into that rage response when somebody says that triggering thing or as low into that freeze response, the hopeless/ helpless response. Then people can stay responsive and work their program or whatever their program is for recovery. That's just my anecdotal observations about what happens with addictions.

QUESTION: WHAT ARE THE MAIN DIFFERENCES BETWEEN NEUROPTIMAL® AND OTHER NEUROFEEDBACK SYSTEMS?

The main difference is that the expertise is taken from the external trainer. The older systems, the protocol systems, where you need a diagnosis or you need a brain map, the trainer reads that protocol and goes "Ah, your alpha is way too high. You've got not enough beta. All right, I'm going to entrain and migrate through feedback giving your brain feedback so that it comes into what we consider more of a normal brain pattern." And so they're kind of nudging the system so you can get some temporary side effects.

When you have the protocol systems, but they are very effective, and especially when you have someone who's doing it a long time, so there's really no problem with protocol-based systems. With the NeurOptimal® system the big shift with the design of the system is giving that real-time feedback. The trainer does not need to be the expert. The expert is the individual's own brain and the theory is if you give real-time feedback to the brain it knows what to do with it to then apply the principles of neuroplasticity and rewire itself.

The most dramatic condition I see change with are head injuries. You give a head injury patient NeurOptimal® sessions and boy, do they change quickly! Because what neurofeedback training is doing is it's saying "Hey brain! You're not finished your work yet. Pay attention to what you see. Pay attention!" The brain's like; "Oh my goodness! I'm going to keep working here. I'm not done!" So then sleep regulates and sensory overload diminishes. The ability to focus increases and so on... So the big difference with NeurOptimal® is the expertise is in the individual brain. It is purely a feedback system. Interruptions in music, millisecond by millisecond, when there is state change. It is global functioning focused. So it doesn't matter if you have ADHD/ADD or you actually have trauma or you have anxiety...or insomnia. It doesn't matter!

All of the maladaptive patterns of the brain are shown to that brain in real-time so you don't have to try to figure out; "Should I do the protocols first for insomnia?" And then do the depression? Or should I start with the depression and then do the insomnia? Which is kind of a challenge... That's where people who are really experts know what order to do them. That's one of the big differences with the NeurOptimal® system. It shows the brain everything that it's doing! So it doesn't pick and choose. The individual brain is the expertise. It's in real time. It's non-invasive. And it's not really by number of sessions as it really is the individual tracking their own progress and seeing the shifts in whatever they want to see and then deciding to either keep training or to stop training. It's really the user's choice. There isn't an external decider who tells you how many sessions you do.

We have tons of information on our website [neurofeedbacktraining.com] so we'll send out some blogs or things people can read more about to follow up, but of course, you're welcome to email us or call us individually, and we're more than happy to answer questions.

I see someone has a question about borderline personality disorder. Borderline personality has a lot merged with trauma. There's no borderline personality without trauma. What is trauma? Trauma is stuck in those dysregulated stress response patterns so neurofeedback and NeurOptimal® would be a very helpful support for somebody with borderline personality disorder along with DBT Therapy. That's a really great treatment modality for borderline personality.

I guess the thing I would say is to really think about neurofeedback as brain health being part of the big picture. The brain gets stuck in patterns. That's how we get a lot of our symptoms. We're helping that brain register when it's stuck in patterns, that aren't appropriate for the here-and-now. There are lots of things we do to help re-regulate ourselves and knowing that NeurOptimal® is one piece and specifically what it's really great for is anything that has to do with the stress response or parts of the brain that are the automatic functioning brain. Because impulse control, hyperactivity, anxiety, depression all those things are the automatic functioning brain happening that's not our willful selves. So we're really giving that part of ourselves the support with NeurOptimal®.

Thank you everybody for coming and I hope you all have a good Friday. Again, please feel free to follow up personally if you have specific questions, we didn't answer both Sara [sara@neurofeedbacktraining] and I are available [natalie@neurofeedbacktraining.com].

We'll send out a follow-up email.

Thank you.

FOLLOW UP EMAIL

Here's a link to watch the recording if you missed it.

<https://www.neurofeedbacktraining.com/webinar>

Here are additional resources from questions you asked.

How is NeurOptimal different from the other systems?

Webinar by Dr. Valdeane Brown, NeurOptimal co-creator:

[Science Behind NeurOptimal](#)

Blog by Natalie Baker:

[What is the Best Neurofeedback? Tips for Consumers](#)

How is NeurOptimal different from the Fisher-Wallace® system?

The Fisher-Wallace device is a micro-stimulation device, not a neurofeedback system. It adds micro-current to the scalp to create state change. NeurOptimal is purely a feedback device, adding nothing to the brain. [Here's a blog on the safety of NeurOptimal®.](#)

Is there a difference between in-office sessions and renting a system?

Because the technology for the home and professional systems are exactly the same there is no difference in the quality of training or session results whether you train at home or in-office. Some of our clients who are near one of our offices will try in-office first and once they are comfortable with the system will rent because it is less expensive and more convenient.

- [Home Neurofeedback Set-Up](#)
- [Cost of renting a NeurOptimal System](#)
- [All training options](#)

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