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Retraining the Brain with Neurofeedback... A Story of Hope

by Dr. Annie Eissler of New Life BrainCore NYC

The other day in San Diego, CA, I was in an art gallery looking at works and gaining some appreciation and inspiration on my morning walk. The owner and I got to chatting about a piece I found particularly interesting and through the course of our conversation, I discovered he had a little boy with special needs and he discovered that I was a chiropractor practicing neurofeedback in New York City. Instantly, we fell into this familiar chat about stories of children with neurological issues (autism, ADHD...) and sensory integration issues similar to those his son is experiencing. Oddly, it wasn't the typical discussion about recent research findings, new treatment protocols, or theories about physiological reasons for children with such issues. It was a discussion from the heart, both our hearts.



We chatted about the standard questions. He wanted to know what neurofeedback does, how it works and exactly what I do with the children that I see. I explained the basics of neurofeedback – that the goal is to regulate dysregulated brain patterns using a computer and operant conditioning. We map a child's brain-wave patterns, and compare them to a database to develop a protocol for the child to use each session. The individualized therapy protocol retrains the abnormal brain waves to create new, healthy patterns to help resolve or reduce symptoms. Through a form of operant conditioning, the computer helps to retrain patterning using a video or playing a game, such as Pac Man, where the brain controls each exercise.

While the technology of neurofeedback is nothing new with over 30 years of documented research, it is a conservative approach compared to a more aggressive approach like the use of pharmaceuticals. As with most conservative or holistic approaches, neurofeedback changes may take more time because changes in the brain take time. The effects of the drugs used to treat ADHD or children on the Autistic spectrum are immediate and noticeable. However, a more glaring and important difference between the two approaches is that the side effects from such powerful drugs may warrant concern, especially long-term.

One of the remarkable things about neurofeedback is that while the changes it makes can become permanent, there are few to no side effects because of the way it is administered. If an adverse symptom is experienced, the protocol is altered so as not to reinforce any undesired patterning. This is the treasure of this kind of therapy – let the brain – which controls everything in the body – take better control with more efficiency. Perhaps in this “race,” the “slower, steadier and continual improvements over time” method should not be overshadowed by more “aggressive” approaches whose impacts are seen immediately, but whose long-term outcomes are yet to be discovered. It depends on priorities. We all know the moral of the Tortoise and the Hare.

Our conversation soon led to my story of “Hope.” When we first met, Hope was a non-verbal four year old, diagnosed with autism. Her mother brought her to my office with one clear objective – she wanted her daughter to start talking. When this little girl first arrived, she made no eye-contact, she flapped, continually covered her

ears, and turned her head hard to the left and looked out of the right side of her eyes; she was still in diapers, and she grunted or hummed. She had no acknowledgement of me or of her new surroundings. The lack of interaction with the world around her stunted her development tremendously – remember, much of a child’s learning comes from watching and imitating.

Typically, before beginning the neurofeedback training, the patient would start out with some breathing exercises. It’s a good way to get oxygen to the brain and to bring the otherwise automatic (or autonomic) functions of breathing and heart rate under more conscious control. The brain is one of the biggest consumers of oxygen in the body and since the neurofeedback session will require some effort from the brain – breathing is always good. With Hope, we’re still working on this part because it is difficult to keep her on task. Once Hope is settled on her mother’s lap and ready to go, we begin the neurofeedback session by placing sensors on Hope’s head in the area of the sites we wanted to train according to the protocol developed from her brain map. (Note – with neurofeedback, there is nothing “put” into the child, the sensors on the scalp are purely for monitoring.)

When speaking about neurofeedback, one of the first questions to inevitably come up is, “how does the brain control the computer?” When the brain produces the desired brain-wave patterning, it gets a reward – in the form of the video getting louder and brighter or the Pac Man gobbling up more dots. The computer uses this form of operant conditioning and through this, it teaches the brain a more efficient patterning to help resolve neurological symptoms. Simple, right? When the patient produces the patterning the computer is looking for, the computer gives a reward. In effect, during each neurofeedback session, the child is watching his brain learn during each of the exercises. “Wow Wow Wubsy” is Hope’s choice for the sessions and she is a captive audience for the duration. There are moments she gets fussy, but I cheerlead and remind her of how good she’s doing and she just needs to do it for a few more minutes. I know she understands on some level because after few minutes, I get the child “glare” stating she knows it’s been a few minutes.

Today, Hope comes through the office door, looking me in the eye and on occasion, I get a “high five.” She rarely, if ever, flaps her arms in the office and her mother states it has significantly decreased at home as well. She makes much more eye contact now, even through the sessions. Within a few sessions, she had started to imitate – which was a tremendous “win.” Her mother said she started to do things she’d never done and would imitate her at every turn. She started climbing, imitating neighborhood children. She was putting together tasks to achieve a goal – ie: She wanted to get the toothpaste from the medicine cabinet and built what she needed to make the climb to the toilet, to the sink, to medicine cabinet to the toothpaste. Hope was building things in her mind and picturing how one thing affects another thing.

Recently, Hope started to climb around the office. Wanting to see how far she’d advanced I allowed it. What I saw was not only what her mother described, but even more. She climbed on to my spinning doctor’s chair and started to stand on it to reach for the controls on the air conditioner. Fearful at first she would fall, I put my hand on the surface part of the chair and patted it. I told Hope to put her bum on the chair and patted it again. Bum down. She looked at me, smiled, and immediately sat down. My heart almost exploded. I looked at her mom. Not only did she hear me and understand me, she followed my direction and shot me a smile to say “just testing.” This is huge. Sensing my joy, her mother pipes in with a, “Oh yeah, and she’s really getting mischievous, but she’s listening better.”

Once a child starts to imitate, things start moving and Hope is moving. She eats at the dinner table now every night for the entire meal. Lately, when her mother goes to school to get her, Hope runs to her and gives her a hug and kiss – something she just started doing. She’s more affectionate all the time. She’s learning how to pull the heart-strings of her adoring father to get what she wants. She’s well on her way to potty training; her only obstacle is at school and getting the teachers on board with her needs. Her sleep patterns have improved, so have her mother’s. Her mother brought me a video of Hope at a play-date. She was interacting with the other child, which up to that point had never happened before. They were chasing each other, laughing and showing and

sharing. Hope's teachers say she's much happier, more attentive, and her mother gets far fewer calls about her behavior. Every day, we see improvements.

I knew on the first day I met Hope I sensed she had a sense of humor. I could feel it. Now, in the office, after our "work" is done and she's able to be free to be about, she'll look at me after doing something and laugh and laugh. I smile and ask if she made a funny. She looks me right in the eye with pure joy and a full set of 5 year-old teeth, and laughs even harder.

While talking with my new art gallery owner friend, I wished I could tell him that I had delivered the "silver bullet" and that now Hope is a neurotypical child (to borrow a Temple Grandin phrase). Sensing my wistfulness, he asked me about it. "Well," I said, "she's still non-verbal." My art gallery friend looked at me wide-eyed and optimistic and said, "but surely you've seen improvements?" I beamed thinking about how far Hope's come. He reminded me of exactly what I like to remind mothers like Hope's. Celebrate the "wins!"

In my heart, I know she'll speak one day. This child has too much to say. Maybe our journey will be finding the way to express what she has to say. Hope is in speech therapy to help develop the muscles she needs to speak. She makes me believe in the therapy I do because I see the changes in her. Maybe someday she'll tell me her perspective. I look forward to that.

I've got Hope.

"These children are so special, in ways that many people don't recognize", says my friend, and I agree. We go back and forth. The goal needs to be to figure out the way their brains work and how to communicate with them, instead of trying to make them fit our models of what we know. Maybe there's a common ground somewhere where we'll all just "get it."

He then looks up and points at a picture on the wall we're standing in front of:

Dr. Seuss' "A Prayer for a Child"

*"From here on earth,
From my small place
I ask of You
Way out in space:
Please tell all men
In every land
What You and I
Both understand...
Please tell all men
That Peace is Good.
That's all
That need be understood
In every world
In Your great sky.
(We understand. Both You and I.)"*

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