

MAKING THE CONNECTION

The quest for home-based solutions

By JANICE YOUNGWITH

"Can I have eggs, Mommy?"

For 7-year-old Logan Tichenor, that one simple early-morning question brought tears to his mother's eyes.

Logan, who was diagnosed with high-functioning autism at age three had lost his ability to communicate as a 15-month-old infant.

"He was developing words and then stopped," recalls his mom, Carrie, noting Logan also struggled to make eye contact.

For years, she and her husband, Todd, the parents of three young sons, searched for ways to help Logan develop social skills and communicate. Their quest to find answers for the debilitating effects of autism was multipronged.

"We did all the preschool kinder classes, story times and group activities we could to expose Logan to others in social settings," Carrie says. They also sought the expertise of occupational and speech therapists, tried the applied behavioral analysis approach to treating autism and implemented various assistive communication programs and visuals to augment Logan's three-word vocabulary. The family worked with a nutritionist to adapt to a casein-free and gluten-free diet and tried various dietary supplements to help Logan's body heal and eliminate pain. Hyperbaric oxygen chamber treatment and regular visits to doctors and the chiropractor also became important parts of day-to-day life.

"Unfortunately, by the time kindergarten arrived, Logan was really struggling," Carrie says; the half-day kindergarten experience was frustrating at best. "Logan's outbursts landed him in the principal's office and his inability to communicate challenged classroom teachers who were not experienced or equipped to work with him."

Home schooling seemed the only option, until his parents teamed with a special teacher to lay the foundation for a nonprofit organization dedicated to exploring nontraditional, inclusion-based educational concepts.

In addition to seeking the advice of leading medical and educational specialists during this time, Carrie searched the Internet, queried online support groups, and attended autism conferences to learn all she could about an autism spectrum diagnosis and potential therapies and treatments.

MAKING THE NEUROCONNECTION

"That's how I first learned about a newer type of brain training called connectivity guided neurofeedback being used to aid those with autism and other neurophysiologic conditions in remapping and rebuilding the brain's neuroconnections," recalls Carrie, whose family makes their home in Fort Branch, Ind. "Unfortunately the closest center



Logan Tichenor, 7, has made progress with brain mapping.

providing neurofeedback therapy was 110 miles away in Louisville, nearly a 90-minute trip from home. With sessions recommended twice each week, it meant we'd be spending a lot of time on the road. They didn't offer the more advanced connectivity guided neurotherapy proven especially beneficial for those with autism and had no home based component."

Further online searching led her to The Neuroconnection in Naperville, a brain mapping and neurofeedback facility offering an advanced form of neurofeedback called connectivity guided neurofeedback based on brain imaging research and a home-based protocol for at home therapy.

"Neurofeedback training can be very effective with autistic spectrum disorders, particularly connectivity-guided neurofeedback, which trains the way the brain communicates with itself," explains Ann L. Rigby, founder and director of The Neuroconnection. Rigby uses connectivity guided neurofeedback to help Logan and other clients form new connections in regions of the brain where they have not been formed previously due to the epigenetic nature of autism.

BRAIN TRAINING AT HOME

Logan and his family made the trip to the Naperville for evaluation, brain mapping, initial marker placement and to learn all they could about program protocols before returning Indiana.

His parents learned in clinic how to use the neurofeedback instrument, loaded with Logan's protocols, to train Logan at home. During each home-based 30-minute session, Logan was connected by two sensors to his scalp and ears, and monitored by trained clinicians via Skype technology. Auditory and visual feedback was provided in the form of a computer game.

That same Skype technology also enables other clients from as far away as Russia and India to tap into the highly specialized technology available in suburban Chicago.

"When producing the correct brain waves, the brains seeks out sights and sounds and becomes conditioned to produce correct brain wave patterns more often," Rigby explains. Over time, the unconscious process makes changes in brain wave activity, decreases symptoms and begins producing optimal functioning.

Periodically throughout the year, Logan and his family made their way back to Naperville for brain remapping and protocol adjustments.

FINDING SUCCESS WITH CONNECTIVITY-GUIDED NEUROFEEDBACK

Connectivity guided neurofeedback makes the changes in the brain that allow other therapies to be absorbed faster, Rigby notes.

"When you have the neuroconnections that allow you to now perform the tasks, improvements are seen more quickly," she says. Speech therapy can be enhanced, children are able to pay more attention and get more out of tutoring, become socially aware and engaged and often need to join a social skills group to catch up due to their new awareness and interest in peers.

Among other results is the ability to transition without disruption, increased focus, improvement in social skills and social pragmatics, increased calmness and decreased anxiety, improved verbal communication or expressive language, improved receptive language, fewer repetitive behaviors, and improved processing speed.

"The new interest in others, improvement in eye contact and empathy can be an amazing thing to watch," she says. "A child at the beginning of training, who had no interest in others, will suddenly come into the office engaging with others in the waiting room or carrying on reciprocal conversations with staff when they were not able to do this before."

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Understanding brain mapping tools

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The connectivity guided neurofeedback process involves the use of specific brain mapping tools that provide three-dimensional statistical computations which show how the brain is communicating with itself. The specific tool that provides a quantitative metric for EEG and measures regions of the brain for connectivity is called NeuroRep, developed by Dr. William Hudspeth.

"These tools take into account the geography and structure of the brain and an understanding of the pathways in the brain that allow information to flow back and forth," explains Ann Rigby, a licensed social worker and president of the Autism Society of Illinois; it is only with these tools that trained clinicians accurately know where and how to do the correct type of neurofeedback training.

"Until recent years, the maps that we used only allowed us to look at the brain as if it were flat and did not account for the distance between the sites that we were evaluating," Rigby says. "State-of-the-art brain mapping today enables us to evaluate regions of the brain looking at areas that are too loosely or too tightly connected and aims to make changes to these abnormalities in functioning."

The sophisticated connectivity guided neurofeedback training is particularly effective for clients with autism, she says, as it trains regions of the



Ann Rigby, right, a licensed social worker and president of the Autism Society of Illinois, works with Zachary Stewart on brain mapping.

brain — where neuropathways were supposed to have formed during early development and did not — for better communication and timing.

Based on the latest research, connectivity guided neurofeedback focuses on brain waves produced by electrical signals as the brain's neurons fire.

"It's a noninvasive, non-medication and painless intervention which enhances neuroregulation and can improve the ability of the brain to function optimally," Rigby says.

Measured using an electroencephalogram amplifier and computer to show when optimum functioning is present, neurofeedback training sessions induce change by rewarding the brain with sounds and visual images from a movie or game that is played when the correct brainwaves are produced.

Because of the brain's lifelong neuroplasticity, the brain can change and form new connections at any age, Rigby says. She currently sees clients ranging in age from three to 77. Training takes an average of 60 sessions for moderate autism and the effects shown in studies over time show that improvements are lasting.

Rigby cites the research of Robert Coben, Ph.D., a neuropsychologist who reported results of a large scale 2009 study of 85 children in an experimental group trained using connectivity guided neurofeedback and which showed a 57 percent decrease in autistic symptoms.

"Using Dr. Coben's model, we have achieved very similar outcomes to his 2009 study that he did including a control group," Rigby says. While Dr. Coben's study reported an average 57 percent reduction in autism symptoms, Neuroconnection clinic outcomes are on average a 56 percent reduction with typical outcomes on completion of sessions being anywhere from 20 to 80 percent. "It's not uncommon for our clients to be able to come off stimulant medication, antidepressants, and anti-anxiety meds following training."

Local families benefit from brain mapping

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Logan's mom also is quick to point to gains in both speech and social engagement. "Today Logan is asking questions, using sentences, making comments and conversation. He's also participating successfully in group activities, something he wasn't able to do previously."

In the past year, she's also seen her son progress on other fronts. "It's been an amazing year. Logan is an affectionate, funny and very smart child who seeks us out, listens when you don't think he is hearing, loves Disney movies, swimming, jumping on the trampoline and engaging with his brothers in all sorts of active play. This winter he especially loved using his sled following the holiday snowstorm."

Even his teachers are in awe, Carrie says. She hopes to share her son's success with other families facing similar autism challenges.

LOCAL FAMILIES FIND SUCCESS

Erin Micklo of Glen Ellyn says her 11-year-old son, Emmett's, gains following a year of connectivity guided neurofeedback training for autism symptoms also have been amazing.

"Emmett is seeking us out more, and we've noticed an increase in conversational give and take," Micklo says. During the course of treatment her son was able to reduce and eventually eliminate his need for anticonvulsant seizure medication. "While doctors don't concur that the training was directly responsible for Emmett's improvement, we couldn't be happier with the outcome."

Marybeth Stewart, a Naperville mother of 9-year-old Zachary, says she did her research prior to making the initial appointment.

"What I learned made sense," says the registered nurse, who always believed her son had the ability to learn and communicate but that he was somehow stuck. "He'd space out, lose focus and, while he was verbal, Zachary was far from being able to converse at a first grade level like his peers."



Despite years of early intervention therapies, social skills group work, medications, intensive at-home verbal prompts and a variety of techniques including the use of weighted vests, brushing protocols, and trying a gluten-free and casein-free diet, Stewart says she was worried.

"He'd make small gains, but we worried about the lack of substantive progress during the critical brain and IQ development period between the ages of 7 and 9," Stewart says. She felt the proverbial clock was ticking.

After nearly a year of connectivity guided neurofeedback therapy, she says her son is on the verge of a major breakthrough and already showing huge gains in expressive language and emotional stability.

"He's asking questions about topics and conversations we had when I didn't think he was even listening," Stewart says; the finite data and concrete results indicate her son is indeed moving in



Erin Micklo and son, Emmett, left. Marybeth Stewart and son, Zachary, right.

the right direction. "He's showing a greater desire to be included in conversations and participating more."

FOR MORE INFORMATION

Neurofeedback has been used for more than 20 years in the treatment of attention deficit, anxiety, chronic fatigue, substance abuse and mood disorders. It meets the American Academy of Child and Adolescent Psychiatry's clinical guidelines for recommending evidenced based treatment.

For information on neurofeedback and connectivity guided neurofeedback, call the Neuroconnection at (630) 858-5015 or visit www.theneuroconnection.com.

For support, information and resources relating to autism, also contact the Autism Society of Illinois, 2200 S. Main St., Suite 205, Lombard at (630) 691-1270 or visit www.autismillinois.org.