

the **Neuroconnection** News

1847 West Jefferson Ave. Suite B
Naperville, IL 60540

September - October 2014
Edition 1, Volume 3

Back to School with The Neuroconnection!



Issue Content

Back to School	1
Learning Disability Research	2
fMRI Study	2
ADD/ADHD Research	3
ADD/ADHD Case Study	3
Success in Reading!	4
Schedule a Talk	5

The professionals at The Neuroconnection understand the neuropsychological symptoms that arise for many students in elementary, middle and high school cause obstacles to learning. Students in college or lifelong learners may have found problems within their coursework as well; such as, reading difficulty, poor math skills, lack of concentration or focus, or test anxiety.

Our staff are experts in advanced, researched-based Connectivity Guided Neurofeedback (CGNFB). Unlike traditional neurofeedback that trained power abnormalities at specific sites in the brain, CGNFB is an advanced form of neurofeedback that improves the brain's ability to communicate with itself over functional brain networks.

Training the brain with CGNFB can result in dramatic and lasting improvements in a wide range of neuropsychological conditions. It is a noninvasive, non-medication and painless intervention which enhances neuroregulation and improves the ability of the brain to function optimally.

CGNFB training improves symptoms associated with learning disabilities that are caused in part from a deficiency in the neuropathways in certain regions of the brain. CGNFB aims to change the abnormalities in functioning by making the necessary connections for specific regions of the brain that are responsible for reading comprehension, reading fluency, expressive language, writing, speech, math calculations, visual and auditory processing.

In this issue, we take a look at different kinds of learning disabilities that can inhibit a student's progress and the benefits of CGNFB to improve functioning. We discuss an fMRI study completed on Connectivity-Based neurofeedback and a 2013 study on students with ADHD which discusses benefits the researchers found from neurofeedback training. We conclude the issue by sharing a success story of a dyslexic student that blossomed at school with the help of CGNFB and by providing additional information on The Neuroconnection's director.



What is a learning disability?

A learning disability is a processing deficit affecting a person's ability to speak, read, write, calculate, think or listen. There is a disconnect between overall intelligence and academic achievement or ability to progress in one or more specific areas. A student with a learning disability may also be considered hyperactive or inattentive.

Underperforming areas of the brain are identified through brain mapping and the client uses this information to train his or her brain to change the wave pattern. The Neuroconnection uses Connectivity-Guided Neurofeedback, which is the most effective form of neurofeedback to address learning disabilities.

What are the main types of learning disabilities?

- **Dyslexia** – A language processing disorder that can hinder reading, writing, spelling, or speech.
- **Dyscalculia** – Difficulty with math calculations.
- **Dysgraphia** – Problems with handwriting, spelling, organizing ideas.
- **Dyspraxia (Sensory Integration Disorder)** – Problems with hand-eye coordination, balance and manual dexterity.
- **Auditory Processing Disorder** – Difficulty distinguishing differences between sounds which results in problems with reading, comprehension or language.
- **Visual Processing Disorder** – Difficulty interpreting visual information which results in problems with reading, math and working with maps, charts, symbols, pictures.

Results seen with Connectivity Guided Neurofeedback:

- Improved reading comprehension, math performance, writing, spelling and organization
- Improvement in cognitive and academic performance
- Increased concentration, planning and organizational ability
- Improved ability to complete homework and class assignments
- Improved phonetics and semantic language

Connectivity-Based Neurofeedback Utilizing Real-Time fMRI:

In 2013, an fMRI study was completed on seven healthy participants (3 male, 4 female, between the ages of 24 to 30), in an attempt to analyze if these participants could voluntarily control their connectivity between brain areas.

The participants completed three neurofeedback runs that consisted of eight neurofeedback trials. Each run tested the participant's ability to voluntarily control the feedback signal by shifting their visual-spatial attention. This approach allowed for training voluntary control over specific regions of the participants functional brain networks. The majority of mental functioning and neurological disorders are associated with neural connectivity architecture rather than specific activity in one brain region.

This study aimed to find an innovative approach to directly target the specific relevant brain networks as to be able to address future neurological disorders. This study found that connectivity feedback is possible, and that a feedback signal can be voluntarily controlled by their participants. "Our new approach is thus suitable to train voluntary control over functional brain networks. This is an important extension of the neurofeedback approach that allows to directly target brain networks underlying mental functions and neurological disorders" (Koush, Y., et al., 2013).

***For more information pertaining to this study please review the reference below.**

References

Koush, Y., Rosa, M. J., Robineau, F., Heinen, K., Rieger, S. W., Weiskopf, N., Vuilleumier, P., VanDeVille, D., & Scharnowski, F. (2013). Connectivity-based neurofeedback: Dynamic causal modeling for real-time fMRI. *Neuroimage*, 81, 422-430.



According to the Center for Disease Control, "In 2011, 6.1% of US children and 4.1% of children in Illinois were taking medication for ADHD. Among all US states, Illinois ranked 43rd highest."

What is Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder?

Attention Deficit Disorder or Attention Deficit Hyperactivity Disorder inhibits a person's ability to concentrate and complete tasks or to fully participate in activities. For children, this can mean poor grades, difficulty maintaining relationships and being subjected to continual criticism and discipline for not paying attention or for acting out.

What are typical ADD or ADHD symptoms and behaviors?

- Difficulty paying attention under ordinary circumstances
- Easily distracted/daydreamer
- Inability to follow instructions or finish homework
- Difficulty with organization and planning
- Forgetfulness
- Fidgety
- Talkative and tendency to blurt out responses
- Impatience
- Have trouble taking turns

Results with Connectivity Guided Neurofeedback:

ADD and ADHD are the most researched disorders that neurofeedback addresses. Over 80 studies support the use of neurofeedback in decreasing symptoms of ADD and ADHD.

Neurofeedback training is highly effective with ADD and ADHD, because it helps to better regulate the brain without use of drugs. It enables the participant to learn what concentrating feels like. Brain training has been shown to produce lasting effects that are maintained even after training is completed.

- Improved focus and ability to concentrate
- Increased IQ scores better grades for school children
- Improvement in organizational skills and ability to follow through
- Less time spent on homework
- Improvement in self-esteem and sociability
- Better quality sleep

ADD/ADHD Case Study:

A 2013 published study in the Biological Psychology journal presented its findings of a sample of 23 children with ADHD (11 boys and 12 girls, ages 7-14 years old). The study was one of the first randomized controlled trials with a six-month follow up that compared neurofeedback training and standard pharmacological medication intervention. Eleven of the children received ADHD medication and the other twelve received 40 sessions of neurofeedback training.

The findings were that "In both groups, similar significant reductions were reported in ADHD function impairment by parents and in primary ADHD symptoms by parents and teachers. However, significant academic performance improvements were only detected in the Neurofeedback group. Our findings provide new evidence for the efficacy of Neurofeedback, and they contribute to enlarge the range of non-pharmacological ADHD intervention choices" (Meisel, et. al., 2013).

***For more information pertaining to this study please review the reference below.**

References

Meisel, V., Servera, M., Garcia-Banda, G., Cardo, E. & Moreno, I. (2013). Neurofeedback and standard pharmacological intervention in ADHD: A randomized controlled trial with six-month follow-up. *Biological Psychology*, (94) 12-21.

Success in Reading!

The professionals at The Neuroconnection have had great success with many different students with a wide variety of learning disabilities. One success story is of a sixth grade student named Amber. Amber started Connectivity Guided Neurofeedback (CGNFB) training at The Neuroconnection in September 2013 for dyslexia. Amber's main goal was to improve her reading fluency and reading comprehension.

Amber's mother, Amy, is a special education teacher and discussed that Amber has been involved in IEP services for reading since the end of second grade. Amy had been searching for a better way to improve Amber's reading ability and was referred to The Neuroconnection by a friend.

During Amber's initial visits, she completed a computerized neuropsychological test and a QEEG, or brain map, to determine CGNFB protocols. Amy provided us with Amber's MAP test scores from the end of fifth grade. The MAP, or the Measure of Academic Progress, is a computerized adaptive test that aides teachers, parents, and administrators to improve learning for all students and to make informed decisions to promote a child's academic growth. According to the national average, Amber fell into a below 3rd grade reading level on her MAP test.

After completing her first protocol of 20 CGNFB sessions, Amber's parents noticed improvements in both her reading fluency and comprehension. Amber noticed that it became easier for her to read. She began to choose books on her own for book reports and felt that she looked forward to reading.

After approximately 60 sessions of CGNFB, Amber completed the MAP at the end of sixth grade. She scored a 215 showing a huge improvement of approximately three grade levels within seven months.

Amy reported that she noticed Amber's reading fluency and comprehension had improved greatly. In addition to the overall academic reading improvement that Amber had demonstrated, her mother also noted many other positive improvements as a result of her CGNFB training.

Amy shared that she has observed Amber to have fewer mood swings and a higher frustration tolerance. She also noted that Amber's attitude toward family and friends is much more positive and that she is more engaged with a brighter mood around others. Amy is also pleased with Amber's increased ability and willingness to engage in reciprocal conversations and with her increased flexibility with routines.

Amy noted that her daughter's self-confidence has improved greatly and that Amber is confident in telling her friends that she has dyslexia. She further explained that Amber has learned to have a sense of humor about her dyslexia and feels that prior to CGNFB she never showed the confidence that she currently exhibits.

"I have noticed that Amber is a happier person, more confident, and appears more invincible."

We are proud to share that Amber was able to reach her goals of improved reading fluency and reading comprehension during her training at The Neuroconnection. We are happy to see such improvement in Amber's confidence and we know she is ready for the school year!



Want to learn more about Connectivity Guided Neurofeedback?

Ann Rigby, LCSW, BCN, Founder and Director of The Neuroconnection and President of the Board of Autism Society of Illinois, has been successfully providing Brain Mapping and Neurofeedback since 2001. The Neuroconnection uses advanced, research based, Connectivity Guided Neurofeedback to help reduce neuropsychological symptoms and create lasting change for the symptoms of Autism, Attention Deficit Disorders, Learning Disabilities and Mood Disorders.

Ms. Rigby was interviewed by NCTV Channel 17 in December 2012. This video can be viewed at www.theneuroconnection.com under the "In The News" section, along with an article titled "Making the Connection" by Janice Youngwith, a writer with the Daily Herald, from the Autism Awareness magazine that discusses a 7-year-old boy with Autism that completed @home training with The Neuroconnection.

Ms. Rigby frequently presents at conferences throughout the year to discuss the benefits of Connectivity Guided Neurofeedback. This year she spoke at the Autism Society of Illinois 10th Annual Parent and Professional Networking Conference, the Special Needs Expo, and the 45th Autism Society National Conference and Exposition. The Neuroconnection is an exhibitor at many national and regional conferences throughout the year.

Ms. Rigby is available to schedule a talk throughout the year at schools, hospitals or healthcare practices. She is able to tailor her talks to meet continuing education course credits and to meet licensure or certification requirements. If you are a professional interested in hosting a talk on Connectivity Guided Neurofeedback, please contact The Neuroconnection at (630) 858-5105.

The Neuroconnection

1728 W. Jefferson Ave.
Naperville, IL 60540

Phone:

630-858-5105

Toll Free:

877-477-6862

E-mail:

arigby@theneuroconnection.com



Financing available with low monthly payments!



Request more information from The Neuroconnection website!

www.theneuroconnection.com