

the **Neuroconnection** **News**

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Welcome Back to School – From The Neuroconnection

We have probably all been subject to those “first-day jitters” at the start of a new school year. From worrying about who your teacher will be or who you will sit with at lunch, to what your friends will think about your first-day outfit. At the beginning of the school year, it is expected for children and adolescents to temporarily exhibit higher levels of anxiety or worry in response to the impending school year. However, if a month into the school year goes by and your child’s level of anxiety has yet to subside, experts agree that this can be an indication of an anxiety disorder.

According to the Anxiety and Depression Association of America, anxiety disorders affect one in eight children. Furthermore, The National Institute of Mental Health estimates that 25 percent of 13- to 18- year olds will experience an anxiety disorder – an increase of twentyfold over the past 30 years. If left untreated, research shows that children with anxiety disorders are at higher risk to perform poorly in school, miss out on important social experiences, and engage in substance abuse.

During this vulnerable time, it is important to be able to acknowledge and recognize if a child is displaying signs of an anxiety disorder in order to treat and prevent further worry and distress. Within the school environment, anxiety is easily triggered by complications with a bully, conflict with a teacher, a challenging class, or a learning disability. Consequently, children can develop a phobia of school that may be exhibited in a combination of the following symptoms: excessive worry and anxiety, inability to explain or stop the worry despite adult reassurance, repeated seeking of teacher approval, difficulty transitioning from home to school, frequent late arrivals or tearful episodes during morning drop-offs or school, refusal or reluctance to attend school, avoidance of academic and peer activities, self-criticism, low self-esteem, and/or difficulty concentrating. Physical symptoms like stomach aches, headaches, nausea, or dizziness may also be present and often appear worse as the time to leave for school approaches.

The professionals at The Neuroconnection have a special focus on addressing the symptoms of those with anxiety by utilizing the sophisticated Connectivity-Guided Neurofeedback (CGNFB) training. Taking advantage of the most state-of-the-art brain training is a perfect way to ensure your child with anxiety has a smooth and successful 2015-2016 school year. For this reason, we bring to you in this month’s newsletter an overview of the descriptive terms outlining anxiety and how CGNFB serves as a modality in decreasing anxiety symptoms. Evidence-based research will also be covered in depth. A case study concludes this issue, demonstrating how CGNFB has provided success for a specific patient with anxiety.



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Preparation is the key



to being ready for school.

**Prepare for the 2015-2016
School Year with
Connectivity-Guided
Neurofeedback at
The Neuroconnection
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Descriptive Terms of Children and Adolescents with Anxiety

Anxiety is one of the most common mental health conditions in children and adolescents. While it is not uncommon for individuals to present temporary anxiety or worry in a particular moment, generalized anxiety disorder (GAD) is a medical condition that causes uncontrollable distress or worry that persists over an extended period of time. In children and adolescents, this may result in excessive worry about a variety of things such as grades, family issues, relationships with peers, and performance in sports. Furthermore, children and adolescents with GAD tend to be very hard on themselves and strive for perfection. They may also seek constant reassurance and approval from others (ADAA, 2015).

According to the ADAA, more specific triggers to anxiety may be identified in children and adolescents resulting in one of the following anxiety disorders:

- **Panic Disorder:** unpredictable and repeated panic attacks unrelated to the surrounding circumstance
- **Separation Anxiety Disorder:** fear of separating from home or primary caregiver
- **Social Anxiety or Social Phobia:** fear of meeting new people or embarrassing oneself in social situations
- **Specific Phobia:** fear of a particular object (spider) or situation (school)
- **Selective Mutism:** refusal to speak in situations where talking is expected or necessary, despite the physical capability to speak to others

Additionally, obsessive-compulsive disorder (OCD) and posttraumatic stress disorder (PTSD) are closely related to anxiety disorders, which children and adolescents may experience at the same time, along with depression (ADAA, 2015)

- **Obsessive-Compulsive Disorder (OCD):** unwanted and intrusive thoughts (obsessions) and feeling compelled to repeatedly perform rituals and routines (compulsions) to try and ease anxiety
- **Posttraumatic Stress Disorder (PTSD):** intense fear and anxiety, become emotionally numb or easily irritable, or avoid places, people, or activities after experiencing or witnessing a traumatic or life-threatening event

Of related concern for children and adolescents during this time of year is a disorder called school refusal. A child with school refusal will refuse to go to school on a regular basis or has a problem staying at school (ADAA, 2015). These children may complain of physical symptoms before leaving for school or repeatedly ask to visit the nurse while at school (ADAA, 2015). In the case that the child is allowed to stay home, the symptoms will quickly disappear but only to reappear the next day. In some cases, a child may refuse to leave the house altogether (ADAA, 2015). The ADAA states that common physical symptoms include headaches, stomachaches, nausea, or diarrhea. Tantrums, inflexibility, separation anxiety, avoidance, and defiance may show up as well (ADAA, 2015).

Another form of anxiety that is seen among many children and adolescents at school is test anxiety. Test anxiety is a type of performance anxiety caused by fear of failure, lack of preparation, and/or poor test history (ADAA, 2015). It may manifest itself in the form of physical, emotional, and/or behavioral/cognitive symptoms as outlined below:

- **Physical symptoms:** headache, nausea, diarrhea, excessive sweating, shortness of breath, rapid heartbeat, light-headedness, and/or feeling faint; can lead to a panic attack
- **Emotional symptoms:** feelings of anger, fear, helplessness, and disappointment are common responses to test anxiety
- **Behavioral/Cognitive symptoms:** difficulty concentrating, thinking negatively and comparing yourself to others

For more information pertaining to the findings noted above, please review the reference below:

Childhood Anxiety Disorders | Anxiety and Depression Association of America, ADAA. (n.d.). Retrieved September 2, 2015, from <http://www.adaa.org/living-with-anxiety/children/childhood-anxiety-disorders>

Imaging Studies of Children and Adolescents with Anxiety

The National Institute of Mental Health reported that imaging studies show that children with anxiety disorders have atypical activity in specific brain areas when compared with other people. For example:

- “In one, very small study, adolescents exposed to an anxiety-provoking situation showed heightened activity in brain structures associated with fear processing and emotion regulation, when compared with normal controls.”
- “Another small study found that youth with generalized anxiety disorder had unchecked activity in the brain’s fear center, when looking at angry faces so quickly that they are hardly aware of seeing them.”

For more information pertaining to the findings noted above, please review the reference below: Anxiety Disorders in Children and Adolescents (Fact Sheet). (n.d.). Retrieved September 2, 2015, from <http://www.nimh.nih.gov/health/publications/anxiety-disorders-in-children-and-adolescents/index.shtml>

Connectivity-Guided Neurofeedback (CGNFB) as a Modality to Decrease or Eliminate Anxiety Symptoms

The Neuroconnection is able to treat anxiety symptoms by addressing specific connections in regions of the brain. Special QEEG tools allow us to see patterns of EEG activity that take into account not only power abnormalities, but also abnormalities with connections between areas that show where anxiety symptoms are. Ultimately, by training connections of the brain in the affected regions, we are able to improve the way the brain communicates with itself, thereby decreasing symptoms in lasting ways.

One major advantage of treating anxiety with CGNFB is that it is a non-invasive procedure with no adverse side effects. It has been proven effective in several studies with many showing positive lasting outcomes. CGNFB is often used in combination with Relaxation Therapy and Cognitive Therapy, to produce desired effects. The Neuroconnection recognizes the need to look at anxiety in the context of the individual’s life and to develop the comprehensive plan utilizing CGNFB while also addressing these environmental contributors.

The Neuroconnection has achieved the following results in treating anxiety:

- Increased calmness and ability to control the “flight or fight” response to stressful situations
- Improved focus and performance
- Decreased irritability
- Improved ability to fall asleep

Evidence-Based Research

Treatment of anxiety disorder with neurofeedback: case study (Moradi et al 2011)

A case study conducted by Moradi et al 2011 helps to further demonstrate the efficacy of neurofeedback treatment on anxiety disorder. The study followed a 28-year-old male and 20-year-old female, both with initial complaints of anxiety, nervousness, aggression and ruminative thoughts. The objective of the study was to evaluate the effects of beta-increase and alpha-increase EEG feedback training, in addition to alpha-theta biofeedback training, on the presenting anxiety disorder in the two patients. Beta waves (15-18 Hz) produced in the frontal lobe of the brain are associated with thinking, concentration, and maintaining concentration. Low amplitude beta waves in this lobe can result in lack of focus, attention, and presence of ruminative thought, while higher amplitudes (20-33 Hz) often lead to restlessness and anxiety. Additionally, high and low alpha wave amplitudes, originating from the parietal and occipital lobes, have been found to result in anxiety and sleep disturbances. Since previous studies have shown that applying alpha increase protocols for patients diagnosed with anxiety disorder can reduce anxiety-related symptoms, alpha reinforcement was used for the two patients, who both presented significantly low alpha in parietal lobes prior to treatment.

Following 30 sessions of EEG biofeedback within a three month period, the study found significant reduction in anxiety-related symptoms for both participants using the Symptom Checklist-90-Revised (SCL-90-R) and patient self-reports. At a one-year follow up the SCL-90-R indicated that all clinical scales were within normal range. The self-reports provided confirmation the patients were symptom free, showing improvement in concentration as well as reduction in ruminative thought, OCD, anxiety, and anger. Based on these findings, the current study concluded neurofeedback was an effective modality treatment for anxiety.

For more information pertaining to the findings noted above, please review the reference below:

Moradi A, Pouladi F, Pishva N, Rezaei B, Torshabi M, Mehrjedi ZA (2011) Treatment of anxiety disorder with neurofeedback: case study. *Procedia – Social and Behavioral Sciences* 30(2011): 103 -07. doi: 10.1016/j.sbspro.2011.10.021

Effectiveness of Neurofeedback Therapy in Children with Separation Anxiety Disorder

Considering the prevalence of anxiety in children, another study conducted by Hashemian et al. 2014 took a closer look at the effects of neurofeedback treatment specific in children presenting separation-anxiety disorder. The study used twenty-four subjects, ages 7 to 12 years old, who had been referred to a child psychiatric clinic with separation anxiety disorder. The participants were randomly divided into two groups of 12, each with 6 boys and 6 girls. In order to evaluate the efficacy of therapy one group received neurofeedback treatment while the other was given sham neurofeedback (placebo). The sham therapy was conducted with the same conditions as neurofeedback treatment with the exception that another individual's neurofeedback film was played to them during therapy. Children in both groups received twenty 30-minute-long sessions over the course of 10-12 weeks. Spencer anxiety tests were recorded for all subjects prior to the first and at the end of the final session. Obtained data was then analyzed with SPSS software using t-tests.

Prior to treatment the baseline anxiety scores of the two groups had a score difference of 4, indicating no significant difference in the initial level of anxiety within the neurofeedback and sham groups. Following treatment the mean anxiety score reduced (improved) by 37 in the neurofeedback group and 29 in the sham group. Based on calculated t-tests, these results indicated there was a significant difference in reduction of separation anxiety within the neurofeedback group, while only a moderate reduction in the sham group. This comparison helps to show the effectiveness of real neurofeedback on reducing separation anxiety in children and confirms the use of such therapy for anxiety treatment.

For more information pertaining to the findings noted above, please review the reference below:

Hashemian P, Sadjadi SA (2014) Effectiveness of Neurofeedback Therapy in Children with Separation Anxiety disorder. *J Psychiatry* 17:1000149. doi: 10.4172/Psychiatry.1000149

CGNFB Provides Success for a Patient with Anxiety at The Neuroconnection

With the use of Connectivity-Guided Neurofeedback (CGNFB), the Neuroconnection has had a great deal of success addressing the symptoms of Anxiety Disorder. One client in particular was a 13 year old named “Cathy”. Cathy began Connectivity-Guided Neurofeedback in January 2013 in hopes of treating persistent anxiety, panic attacks, and agoraphobia she had been experiencing since the age of 9. Cathy’s mother reported the panic attacks would present 2-3 times per day, occurring randomly outside of the home at school or a restaurant. She expressed Cathy also had difficulty sleeping and indicated signs of depression, which often led to her daughter not wanting to leave her room. Despite being an excellent student academically Cathy avoided school on a regular basis necessitating her to have a specialized plan with the school counselor and her own psychologist. While Cathy was prescribed Zoloft at the time to help manage her symptoms, she was still experiencing the panic attacks, as well as drowsiness when on the medication. Her mother noted additional concerns including emotional sensitivity, impatience, irritability, and poor eye contact prior to starting treatment.

At the time of her first intake Cathy was not physically attending school at all. Her assignments were sent home and she would have full blown panic symptoms when easing back into the school day was even mentioned. During Cathy’s initial visits, a QEEG, or brain map, was administered in order to determine the protocol for her CGNFB training. Cathy participated in twice weekly CGNFB sessions. Following her first set of sessions, Cathy displayed significant improvements with both anxiety and mood. Her Clinical Psychologist reported Cathy had gone from not being able to

set foot in her school, to being able to stay in a classroom during the morning hours within the two months he had seen Cathy since beginning CGNFB. Her mother indicated a decrease in severity and frequency of panic attacks had enabled Cathy to return to school part time. Cathy was also experiencing improvements in sleep, fewer negative thoughts, and overall felt more motivated and relaxed. Her mother expressed “the Neurofeedback seems to be helping in many ways”, noticing her daughter “feels happier and less worried, is keeping up with homework, and has started socializing more”.

With these positive changes, Cathy continued with a second set of CGNFB sessions that was determined after a re-map QEEG. By the next 10 sessions of training, Cathy was able to regularly attend school for 75% of the day. Her mother confirmed further progress with anxiety, noting that tasks such as going to the grocery were becoming easier for her daughter. Cathy reported improvements in her ability to fall and stay with sleep, as well as an overall increase in motivation, energy and source of pleasure. Cathy continued to progress to the point of being able to attend school with no further interventions. Medications were discontinued and at this writing Cathy is reported to be doing well, anxiety-free and thriving in high school.

The Neuroconnection is pleased to share the success of Cathy’s progression with anxiety during CGNFB treatment. We were delighted to see such improvements in her symptoms and could not have been more proud to have her back in school by the end of her training.

*Name and dates have been changed to maintain confidentiality.

@ Home Training through The Neuroconnection

Upon seeing such excellent results in the past 7 years with Connectivity Guided Neurofeedback (CGNFB), we wanted to find a solution to provide the training to those outside of our area or with schedule inflexibility. As a result, The Neuroconnection provides an @ Home Training program to conduct CGNFB sessions in the convenience of your home. For the past 3 years, we have been providing our expertise and therapeutic treatment to families all around the world. The option of training daily at home has been proven successful with our clients expanding as far as Russia and India.

The @ Home Training program first starts off with an initial intake, along with a QEEG or "brain map" in the office. A custom protocol is then made for the specific needs of the client. At this time, an extended training session is set up within the office to instruct you on how to run a session. We provide you with all the necessary tools and equipment including the neurofeedback system in addition to a laptop which is pre-loaded with all the software and protocols required to conduct training sessions at home. We also provide an Atlantis amplifier, electrodes, head cap to show correct placements, and an @ Home Training manual.

Following the training, we monitor you at home via Skype to verify that you are receiving CGNFB training correctly. Once you feel comfortable training with the software, you may then begin to run sessions on your own with The Neuroconnection monitoring your progress. One protocol consists of 20 sessions, with at least two sessions ran each week until completion of the set protocol. Once finished with the first protocol, you would then return to our office for a QEEG remap to allow for pre and post comparisons.

The
Neuroconnection
@ Home Training
brings Connectivity-
Guided
Neurofeedback to
the convenience of
your home.

Call (630) 858-5105 now
to find out more!



Learn more about The Neuroconnection's director:

Ann L. Rigby, MSW, LCSW, BCN has over 25 years of experience in the mental health field. She has specialized training and extensive experience in the areas of Autism, Attention Deficit Hyperactivity, Anxiety, and Mood Disorders. Ms. Rigby has been providing Neurofeedback services since 2001. She founded "The Neuroconnection", a Brain Mapping and Neurofeedback clinic that provides an advanced, research-based form of Neurofeedback known as Connectivity Guided Neurofeedback.

Ms. Rigby is the Board Chair for the Autism Society of Illinois and is a field placement instructor for graduate students from Benedictine University. She holds memberships with the International Society for Neurofeedback and Research (ISNR), the Association of Applied Psychophysiology and Biofeedback (AAPB), the Biofeedback Certification Institute of America (BCIA), and the National Association of Social Workers (NASW).

Ms. Rigby is a frequent speaker and exhibitor at many national and regional conferences throughout the year on topics related to the benefits of Connectivity Guided Neurofeedback. In the past year, Ms. Rigby spoke at the following conferences: The 45th Autism Society of America National Conference, The Special Needs Expo, The Family Time Magazine Autism and Special Needs Seminar, and the Autism Society of Illinois 10th Annual Parent and Professional Networking Conference.

To learn more about up and coming speaking engagements, go to our website www.theneuroconnection.com and visit our Resources tab.



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