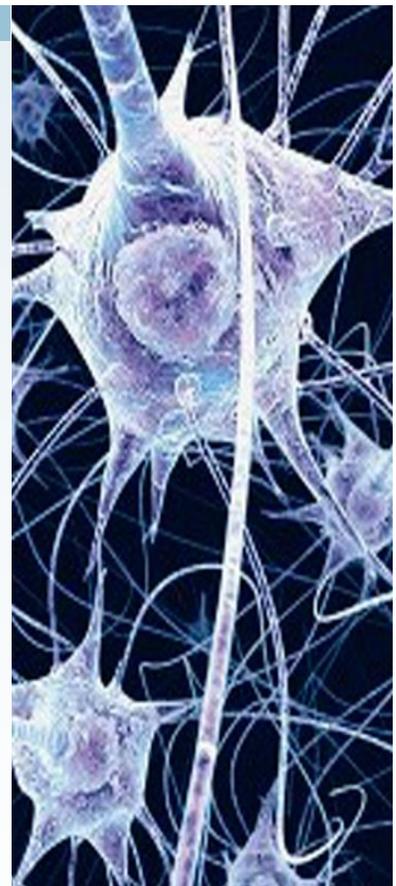


FIGHTING THE WINTER BLUES

Longer periods of darkness and gloom can mean worsening symptoms for those with Seasonal Affective Disorder.

Feeling depressed for short periods of time is not uncommon for many people throughout their lives. Sometimes, however, this shift towards a lower mood comes and goes with the changing of the seasons. Some may report feeling down with a greater frequency and intensity as the nights become longer and the days become dreary, with symptoms lifting spontaneously in the springtime. When these seasonal feelings of sadness and low energy begin to interfere with someone's daily functioning, it may be due to Seasonal Affective Disorder, or SAD.

Millions of people around the globe struggle with SAD, particularly those who live in regions with drastic changes in seasonal climate, yet many remain unaware of SAD's influence on their recurrent feelings of depression. In this issue of the Neuroconnection News, we're going to demystify SAD by taking a look at its primary symptoms across age groups and the current working theories for SAD's potential causes. We'll also investigate the emerging research into potential treatment options for SAD, including connectivity-guided neurofeedback. Finally, we will share a SAD success story, with a description of how depressive disorders are being resolved right here in our office at the Neuroconnection.



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Special points of interest

- How is SAD different from typical symptoms of major depressive disorder?
- Can light therapy or vitamin D supplementation truly help?
- Does Neurofeedback provide effective reductions in SAD symptoms?



Feeling SAD: Signs and Symptoms

Seasonal Affective Disorder is considered to be a subtype of Major Depressive Disorder (MDD), and therefore the diagnostic criteria for SAD include those that define traditional depressive episodes in addition to SAD’s characteristic seasonal criteria.

- Feeling sad, empty, or hopeless
- Feelings of guilt or worthlessness
- Diminished interest in usual activities, social withdrawal
- Unintended change in body weight
- Changes in sleep
- Low energy
- Reduced concentration
- Suicidal ideation

Seasonal Affective Disorder must come and go on a regular, seasonal basis with periods of low mood and periods of remittance. Without this pattern present, SAD symptoms would be interpreted as MDD.

Understanding the Root Causes: No Single Answer

While researchers remain uncertain as to the direct mechanisms of SAD’s development, several hypothesis have been put forth. One possible reason for SAD’s occurrence during the colder and darker winter months may stem from reduced levels of vitamin D absorption. As we cover up more and spend a greater amount of time indoors, our skin has a limited capacity to absorb vitamin D from the sun’s rays. As a result, serotonin levels in the body drop, and mood tends to lower. Similarly, reduced levels of sunlight trigger an enhanced production of melatonin within the body. Excessive melatonin production can wreak havoc on the body’s natural circadian rhythm, leaving you feeling fatigued.

SAD Across Age Groups

Whereas adults typically experience depressive disorders as low mood and fatigue, children and adolescents can frequently display a differing set of outward symptoms. Younger people with depression may show signs of increased irritability: they may be easily annoyed, have a shorter temper than usual, or experience heightened sensitivity. Like adults, children and teens may also notice a change in their weight. For younger kids, depression may mean that they aren’t meeting their expected weight milestones. It is important to consult with your health care provider if you believe that your child may be experiencing SAD or MDD.



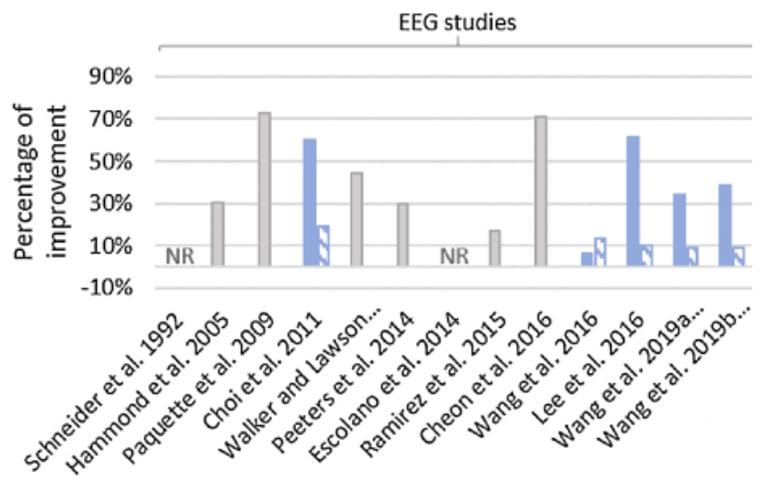
An Overview of Treatment Options

Much like Major Depressive Disorder, Seasonal Affective Disorder can be treated through both pharmacological and non-pharmacological approaches. Psychotherapeutic techniques, particularly CBT, are popular measures for processing the distressing thoughts and reduced motivation associated with SAD. CBT for the treatment of SAD is often paired with the use of one or multiple anti-depressant drugs. While this treatment approach has become a mainstay in psychiatry, studies have shown that anti-depressant drugs fail to produce symptom reductions in approximately one-third of patients with SAD (Rush, 2007). Other studies indicate that 27% of people with depression end medication treatment early due to adverse side-effects (Thaler et al. 2011). Treatments involving vitamin D supplementation also yield inconclusive results, showing a mixed capacity to provide relief for patients (Frandsen et al., 2014). Finally, light therapy has emerged as a possible way to effectively stave off the winter blues. Light therapy, while potentially beneficial for people with SAD, requires a patient spending about 30 to 45 minutes in front of an extremely bright light box mimicking the sun. Because of this, people with limited spare time or sensitivities to light may not be able to tolerate light therapy for their symptoms.

Feeling Better Faster: Neurofeedback for the Treatment of SAD

Depressive disorders comprise one of the most extensively studied applications of neurofeedback treatment, with the first case studies having been performed over two decades ago (Trambaiolli et al., 2021). Since then, neurofeedback research into the treatment of depression has boomed.

A recent meta-analysis collected thirteen peer-reviewed EEG-neurofeedback studies on the treatment of depression. While the studies themselves varied somewhat in their experimental designs, these thirteen neurofeedback studies each employed similar training paradigms for major depressive disorder. The review found that in each of the EEG-neurofeedback studies that had reported their symptom data, patients in the treatment groups presented with improvements in their depression symptoms. As seen in the above graph, the degree of symptom reduction varied depending on the experimental design of each study, with an average of approximately 43% of depressive symptoms being reduced across the studies.



Reviews like these are critical for exploring neurofeedback's efficacy in reducing symptoms for people that struggle with depression and offer evidence of neurofeedback's validity for the treatment of this class of disorders. Positive clinical outcomes are possible with neurofeedback training—giving patients another opportunity to feel better and take control of their mental health.

Frandsen, T. B., Pareek, M., Hansen, J. P., & Nielsen, C. T. (2014). Vitamin D supplementation for treatment of seasonal affective symptoms in healthcare professionals: a double-blind randomised placebo-controlled trial. *BMC research notes*, 7(1), 1-8.

Melrose, S. (2015). Seasonal affective disorder: an overview of assessment and treatment approaches. *Depression research and treatment*, 2015.

Rush, A. J. (2007). Limitations in efficacy of antidepressant monotherapy. *Journal of Clinical Psychiatry*, 68(B), 8.

Thaler, K., Delivuk, M., Chapman, A., Gaynes, B. N., Kaminski, A., & Gartlehner, G. (2011). Second-generation antidepressants for seasonal affective disorder. *Cochrane Database of Systematic Reviews*, (12).

Trambaiolli, L. R., Kohl, S. H., Linden, D. E., & Mehler, D. M. (2021). Neurofeedback training in major depressive disorder: a systematic review of clinical efficacy, study quality and reporting practices. *Neuroscience & Biobehavioral Reviews*, 125, 33-56.

Feeling Down? You're Not Alone.

If you or someone you know is in immediate distress or is thinking about hurting themselves, call the National Suicide Prevention Lifeline toll-free at 1-800-273-TALK (8255). Prefer to text? Send a message to the Crisis Text Line (HELLO to 741741) to get connected with a trained crisis counselor. For more information on suicide prevention, visit the National Suicide Prevention Lifeline website at <https://suicidepreventionlifeline.org>.

Depression doesn't have to be battled alone—get the help you deserve.



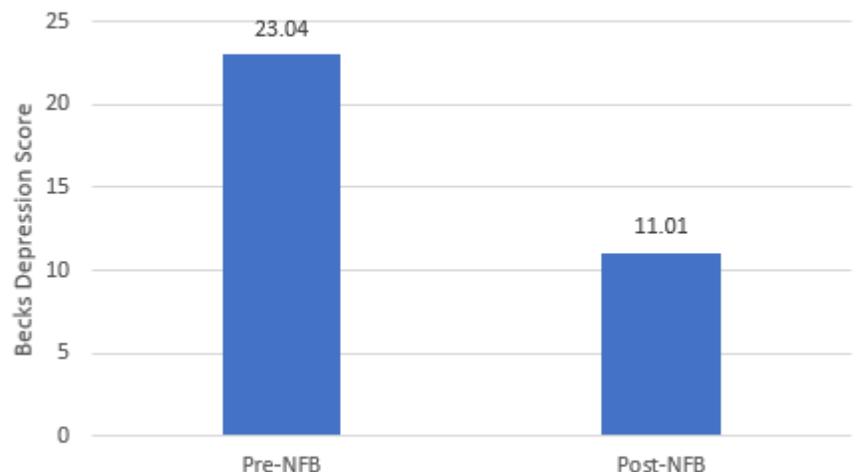
The Neuroconnection Can Help Reduce Symptoms of Depression

Just how effective is NFB in reducing symptoms of depression, regardless of season? One way we measure the effectiveness of our neurofeedback training is through a measure called the Becks Depression Inventory. The Becks Depression Inventory has a client answering a series of self-reported questions that assess mood and behavioral indicators of depression. Each question can then be rated and quantified to describe the severity of depressive symptoms. This questionnaire is filled out at the beginning and end of each set of neurofeedback sessions, allowing us to track an individual's progress over time as well as to gauge the overall effectiveness of neurofeedback in clinical practice.

We've compiled and analyzed over eight years' worth of data on our clients. While many more clients have experienced the benefits of neurofeedback over the years, we focused on the people who came to us with elevated symptoms of depression and whose primary goals for training were to reduce their depression-associated symptoms.

We took the Becks Depression Inventory results of 84 individuals consistently participated in at least two NFB sessions per week and completed at least 10 sessions. While the total number of session varies from person to person, the average number of sessions completed was 20. Overall, we saw that the reported severity of our clients' depression symptoms were reduced by approximately 52% on average—a wonderful testament to neurofeedback's capacity to aid in the treatment of a variety of depressive disorders.

Becks Depression Inventory Pre- and Post-NFB





Jorge's Story

At the Neuroconnection, we serve a wide range of people from a multitude of unique backgrounds. When Jorge, a young man who immigrated to the U.S. as a child, came in with complaints of a darkening mood and spiking anxiety, we knew we could help.

At his initial consultation, Jorge shared that his attempts at treating his depression with medications had not been fruitful: as he tried to find the correct balance of type and dosage of medication, his mood would regularly worsen, his appetite

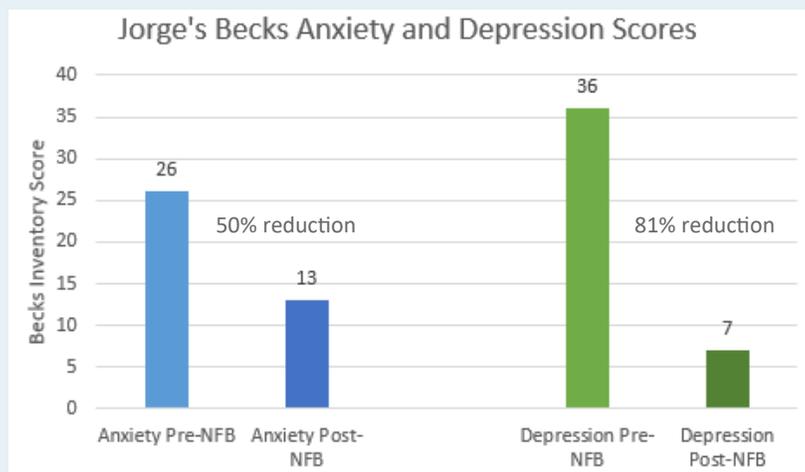
would decrease, and it was becoming difficult to perform at work and school. Jorge needed a change.

Jorge began with a QEEG brain map to assess the power and connectivity abnormalities in his brain. Unlike neurofeedback in the past that simply trained power abnormalities at specific sites, connectivity neurofeedback improves the brain's ability to communicate between different regions of the brain. This distinction is essential, as the symptoms associated with Jorge's anxiety and depression are caused in part from a deficiency in the neuropathways that connect certain regions of his brain. The QEEG results were used to create the parameters to train Jorge's brain in the areas necessary to reduce his symptoms. He began neurofeedback four times per week, for three different protocols.

As Jorge completed sessions, he began to experience notable changes in his mood, affect, and ability to concentrate. On his twelfth session, he noted that he hadn't had a panic attack in weeks—something he never imagined was possible at the start of his training. His depression was lifting, too, and with the advice and direction of his psychiatrist, Jorge was able to completely discontinue his course of anti-depressants. He would come into the office feeling brighter, more social, and frequently sharing stories of his academic and professional successes.

Quantitative data taken from Becks Anxiety and Depression Inventories performed before and after Jorge's neurofeedback training reflected the incredible reductions in Jorge's symptoms. His initial Becks Inventory results showed Jorge had severe depression and moderate anxiety. After training, Jorge's anxiety was reduced by half and his depression by 81%.

The decision to seek help for depression can occasionally be difficult. At the Neuroconnection, we are proud to facilitate major mental health changes for the people that step foot in our doors. Feeling better is within reach, and the Neuroconnection can't wait to help.



What is Connectivity Neurofeedback?



Connectivity Neurofeedback (CNFB) is an advanced form of Neurofeedback (NFB) that allows the brain to make changes in brain wave patterns across cortical regions in order to develop more functional neuro-pathways. CNFB is more accurate than traditional NFB because it measures the neuronal network activity in three dimensions across regions. This is in contrast to traditional NFB which only trains specific sites. CNFB allows for improved communication within the brain and in turn decreases neurologically rooted symptoms.

Learning disabilities, ADHD, Autism, and other problems impacting school success have specific connectivity patterns. These patterns are identified via a QEEG brain map, and they are found to improve with CNFB training. Typical functional improvements include: improved focus, attention, and cognitive abilities, improved mood and behavior, increased learning capacity and academic performance, and better sleep regulation. Because CNFB creates new neural pathways, changes in the brain are lasting and involve none of the adverse side effects that may be experienced with medications.

“Because CNFB creates new neural pathways, changes in the brain are lasting and involve none of the adverse side effects that may be experienced with medication.”

The professionals at The Neuroconnection understand that neuropsychological conditions, if left untreated, can adversely affect an individual’s quality of life. Our Mission at The Neuroconnection is to provide quality, personalized care using the most up-to-date and researched neurofeedback methods to empower adults and children to reach their optimum potential. We understand the value and importance of coordinating care with other health, educational and mental health providers, and we are committed to integrating neurofeedback with other treatments and services to produce the best outcome for our clients. In basic terms: at the Neuroconnection, it’s always a collaborative process.

Who can benefit?

Improvements in Mental Health

- *Attention Deficit /Hyperactivity Disorder
- *Autism Spectrum Disorders
- *Anxiety
- *Addictions
- *Chronic Fatigue
- *Learning Disabilities
- *Memory
- *Mood Disorders and Depression

- *Obsessive Compulsive Disorders
- *PTSD/C-PTSD
- *Seizure Disorders
- *Traumatic Brain Injuries

Improvements of Symptoms

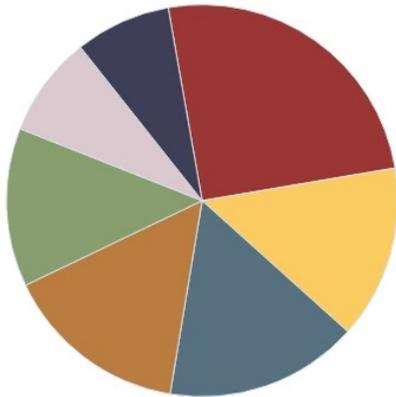
- *Executive Functioning and Processing
- *Attention and Motivation
- *Sensory Sensitivity
- *Mood and Behaviors
- *Obsessive Thoughts
- *Academic Performance
- *Social and Motor Skills
- *Sleep Quality

TNC Results & Symptom Improvements

With Connectivity Neurofeedback

Since 2001, TNC has empowered over 800 children and adults to reach their fullest potential by helping their brains learn how to self-regulate, thereby reducing or eliminating the need for medication and creating lasting improvement for a wide range of neuropsychological symptoms. Below we have provided a breakdown of the common symptoms addressed at our office, along with examples of the long-term benefits experienced by those who completed at least 10 sessions of CNFB training.

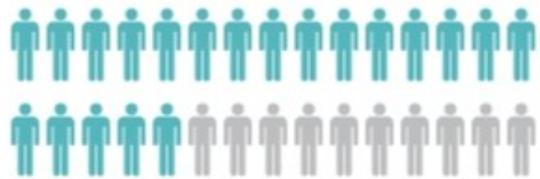
SYMPTOMS TREATED



■ ADD/ADHD	25%
■ ASD	14%
■ ANXIETY/PTSD	16%
■ SEIZURE/ PAROXYSMAL EVENTS	15%
■ MOOD DISORDER	13%
■ LEARNING DISABILITY	8%
■ NO FORMAL DX	8%

LONG-TERM BENEFITS

73% of patients reduced or eliminated the need for medication



average decrease in anxiety symptoms — measured via Beck's Anxiety Inventories



average decrease in depression symptoms — measured via Beck's Depression Inventories



average decrease in symptoms associated with Autism — measured via ATEC

OTHER COMMON IMPROVEMENTS

- | | | |
|-------------------------|----------------------|-------------------------|
| ✓ Executive functioning | ✓ Obsessive thinking | ✓ Test performance |
| ✓ Processing speed | ✓ Planning | ✓ Speech & language use |
| ✓ Attention | ✓ Motivation | ✓ Reading comprehension |
| ✓ Organization | ✓ Motor skills | ✓ Math concepts |
| ✓ Sleep | ✓ Social skills | ✓ Sensory sensitivities |



Upon seeing such excellent results in the past 11 years with Connectivity-Neurofeedback (CNFB), our professionals aimed to extend access to training for those outside of our geographic area or inflexible schedules.

As a result, The Neuroconnection designed an @ Home Training pro-

gram to offer CNFB sessions in the convenience of your home. For eight years, we have been able to provide our expertise and therapeutic treatment to families across the world. The opportunity for daily neurofeedback training at home has brought successful results for clients living as far as Russia and India.

Request more information from The Neuroconnection Website!
www.theneuroconnection.com

Meet Our Director

Ann L. Rigby, MSW, LCSW, BCN has over 30 years of experience in the mental health field. 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 Neurofeedback.

Ms. Rigby is a past Board Chair for the Autism Society of Illinois. She is a fellow and Board Certified member of The Biofeedback Certification International Alliance. She is also a field placement instructor for graduate students at Benedictine University and holds memberships with the International Society of Neurofeedback and Research (ISNR), 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 Neurofeedback.

For more info about upcoming speaking engagements, go to our website www.theneuroconnection.com and visit our News and Events tab.



the Neuroconnection
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