

Case Study: ADHD and Emotional Regulation Success Story

Helping a child move from chaos to calm through brain-based training.

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Results at a Glance

- Returned to full-time school by year's end
- 10 key functional brain areas showed 50–100% objective improvement
- Emotional stability improved from 4&5 to 1&2 on a 5-point subjective scale'
- Parents' report: "We have our normal school kid back."

Background: ADHD and Emotional Dysregulation Case

A client we will call Beth is a bright 10-year-old girl previously diagnosed with attention-deficit hyperactivity disorder (ADHD, combined type) and disruptive mood disorder, excelled academically but struggled to get along with peers and stay in the classroom.

Her parents described frequent physical outbursts that could involve throwing objects in the classroom or disrupting group games if she was not winning, emotional volatility, and difficulty completing daily self-care tasks. These behavioral challenges had resulted in the school limiting her to three hours in the classroom daily, essentially homebound. Her family's top goal was to help her return to a full school day and restore calm to her home life. Specific target goals for brain training included:

- Improve emotional dysregulation
- Rewire her automatic negative thoughts
- Reduce or eliminate violent and aggressive outbursts towards others
- Improving sustained attention and concentration during tasks
- Increase body awareness to improve personal hygiene

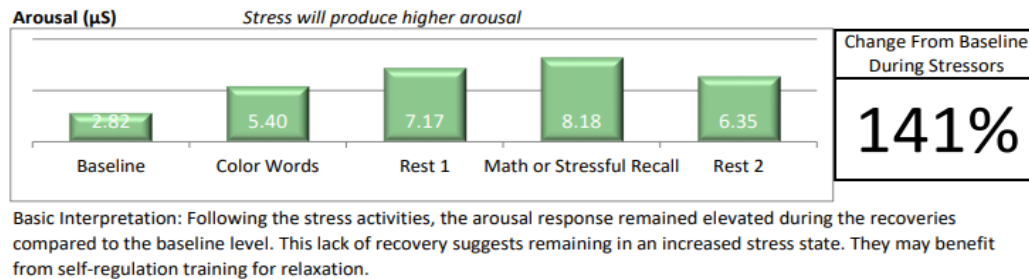
How We Used Neurofeedback and Movement Therapy

We began Beth's customized program with a series of assessments including an Advanced qEEG brain map called the Kaiser NeuroMap. In contrast to the standard qEEG that reflects the balance of brain activity patterns in large regional zones, the Kaiser NeuroMap provides precise insights into the innerworkings of 55 functional brain areas on each hemisphere for both sensory integration pathways and for response pathways responsible for actions, behaviors, thoughts, and relating.

Beth's advanced brain map revealed the brain areas of function that were vulnerable to or hijacked by the irrational fight/flight limbic system. The brain-body stress test (BioGraph) showed she had trouble recovering and regulating her arousal levels during and after stress (Fig. 1). Her attention performance measure (QIKtest) revealed struggles with impulse control when bored, and difficulty maintaining attention when performing under pressure.

The combination of these objective baseline insights gave us a custom map of where and how to train her brain using hemodynamic (HD) neurofeedback, neurodevelopmental movement, and a plan for periodic reassessments to gauge progress.

Fig. 1: Brain Body arousal level results



Using the advanced Kaiser method of HD neurofeedback, we teach the brain to shift bloodflow from its primitive emotional Limbic center (subcortex) to cortical thinking regions (neocortex)—activating neuroplasticity and promoting self-regulation. The qEEG brain map revealed multiple Brodmann brain areas requiring support, including those responsible for task completion, attention, decision-making, and emotional control.

Targeted Brodmann Areas & Rationale

Brodmann / Region	Primary Functions (plain language)	Goals in This Case
Posterior Cingulate & BA7	Task completion, decision-making, sustained attention, sleep regulation	Improve task shifting, in-class attention, decision follow-through, personal routines
BA5 (Somatosensory Association)	Body awareness and sensory integration	Reduce sensory-driven dysregulation; support hygiene and daily living skills
BA6 (Premotor)	Planning and sequencing actions; motor readiness	Support organized, goal-directed behavior and smoother transitions
BA19 (Visual Association)	Visuospatial processing used for reading, scanning, classroom tasks	Reduce overload during visually demanding work; sustain focus
BA38 (Temporal Pole)	Social-emotional meaning and affect labeling	Decrease rages; improve interpretation and regulation of emotion

BA44R (Right Inferior Frontal)	Inhibition, impulse control, social pragmatics	Reduce impulsivity and oppositional/defiant behaviors
Anterior Cingulate	Monitoring, error detection, flexible shifting of attention	Increase cognitive flexibility; reduce defiance and perseveration

A neurodevelopmental screening by our neurodevelopmental specialist on staff also showed immaturities in early brain development; gaps in the developmental sequence. These foundational circuits near the brain stem are neuroplastic and able to rewire using specific movements performed daily from home. Beth's customized plan included movements such as belly crawling and patterns, and sensory stimulation activities to close the gaps in visuospatial processing and body awareness.

Timeline of Training

Beth's initial neurofeedback program involved two in-person sessions each week, one-on-one with one of our expert clinicians, for approximately four months. During each one-hour session, she watched a movie while electrodes monitored her brain activity. The screen size and sound served as feedback—rewarding her brain when it operated within optimal parameters. This process helped her brain form healthier pathways.

In parallel, her home-based neurodevelopmental movement program began with an expected timeline of 18 months, including periodic in-office reassessments.

Measuring Progress

At Carolinas Biofeedback Clinic, we monitor progress with formal reassessments to determine object improvement and with subjective reports from the client and family.

Subjective Results

After completing the first phase of neurofeedback training, Beth's family noticed amazing progress: significantly better behavior, improved emotional regulation, improved task completion, and less anger. The teachers and administration recognized these improvements and gradually increased the number of hours Beth could stay at school each day. Her parents joyfully shared, "We have our normal school kid back." Additionally, a subjective rating 5-point scale completed by her parents periodically helped us to track specific behavior severity at every neurodevelopmental reassessment; we watch for trends in the right direction across the list of targeted behaviors.

Objective Results at the First Check-point

To validate these changes, we repeated the Kaiser NeuroMap and a reassessment of neurodevelopmental movement.

A remap gives us insight into the specific areas that have successfully rewired, to what extent, and what still needs further training. Typically, we expect to see 25–50% improvement (see Fig. 2) at this stage. Beth’s results surpassed expectations: 10 brain areas improved by 50–100%, including one very important core network for Beth—directly correlated with oppositional and defiant behaviors—achieving full normalization (See the pre-post images in Fig. 3 and Fig. 4).

Fig. 2: Chart showing maturation sequence

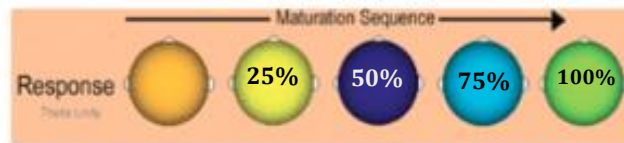


Fig. 3: Image depicts corticolimbic dysrhythmia in executive region from initial assessment

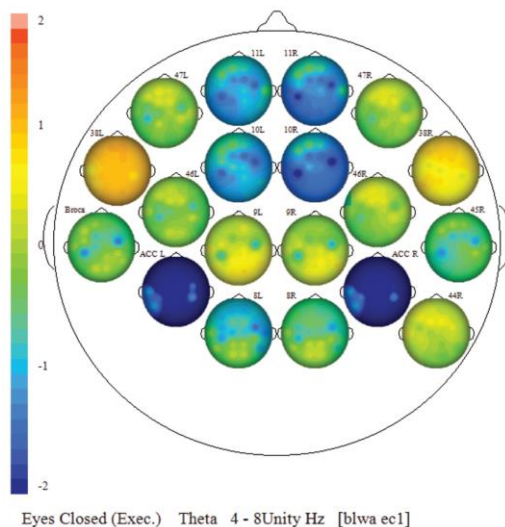
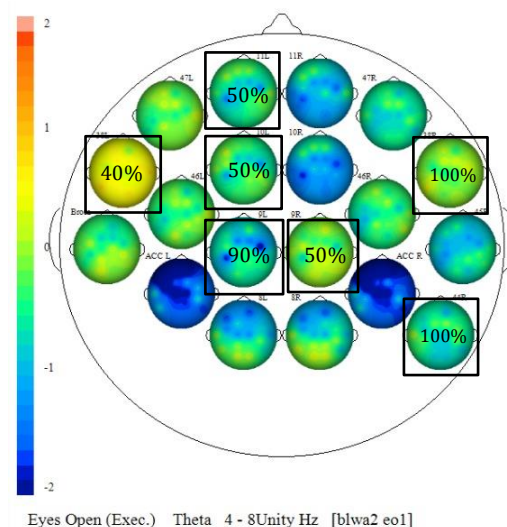


Fig. 4: image depicts corticolimbic rewiring in executive region from repeat assessment



Seen in Figures 3 and 4, Beth’s remap also shows stronger, more efficient wiring in her brain’s executive center, meaning her brain no longer has to work as hard to stay regulated. The Brodmann area related to self-concept and core anxiety appeared completely healthy. Based on these results, Beth completed a second, three-month neurofeedback protocol focused on fine-tuning specific areas.

Final Results: From Homebound to Thriving in School

After completing her second protocol, Beth’s transformation was remarkable. Her parents expressed that they are “beyond happy.” They specifically called attention to her now steady emotions, doing her homework without a fuss, and lasting improvements in anger management. Most symptom ratings dropped from 4s and 5s to 1s and 2s on a five-point

scale. **Most importantly, Beth returned to full-time school attendance by year's end and continued her movement program to refine coordination and focus.**

Her personalized training program taught her brain to adapt and self-regulate even in unpredictable environments—enabling her to enjoy everyday routines (including her part in personal hygiene), experience positive reactions to life stressors, managing her emotions, and engage positively with peers.

What This Means for Other Families

Every brain is unique, but Beth's story shows how combining neurofeedback and neurodevelopmental movement can create lasting change in focus, regulation, and confidence—without medication. At Carolinas Biofeedback Clinic, each client's plan is custom-tailored to their individual brain map and goals, helping them experience the freedom of 'You, Only Better.'