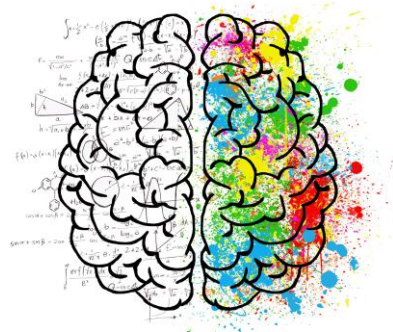


Counseling and NeuroTherapy: *Unlocking the full potential of the brain*



Amy Palmer, PsyD, BCN, QEEG-DL
Deb Del Vecchio-Scully, LPC, LMHC, BCN, DCMHS



Center for
NeuroPotential

- ❖ Co-Founder, Center for NeuroPotential & NeuroPotential Academy
- ❖ Newtown Clinical Recovery Leader, Sandy Hook School Support Clinician
- ❖ Diplomat, Clinical Mental Health Specialist in Trauma Counseling, AMHCA
- ❖ Certified EMDR Clinician, Approved Consultant
- ❖ 2015-2016 ACA Presidential Anti-Interpersonal/anti-bullying Taskforce Member
- ❖ Former CT Counseling Association Executive Director
- ❖ 20+ years of experience working in a variety of counseling settings including 4+ years serving the Newtown-Sandy Hook Community
- ❖ Professionals United for Parkland Special Consultant
- ❖ Oxford, Michigan Trauma Recovery Network Consultant
- ❖ Teachers United to End Gun Violence Consultant
- ❖ Specialist in Communal trauma, grief/loss, brain-based therapies, mindfulness, and strengths-based counseling
- ❖ **Certifications:** Neurofeedback, EMDR, Yoga Therapy, Clinical Hypnosis, Reiki Master, Trauma-Focused Art Therapy

Trained in Neurofeedback, Biofeedback, , DBT, EFT/Tapping for Trauma, Yoga Therapy, Guided Imagery, Mind-Body Medicine, Mindfulness based practices, Therapeutic Aromatherapy and Positive Psychology.



©2023 Center for NeuroPotential





Amy Palmer



Deb Del Vecchio-Scully

Co-Founders
Center for NeuroPotential



Our Model



Holistic, evidenced based and whole-brain based treatment to address all symptoms. Guided by the brain, mind and body's response to life events.



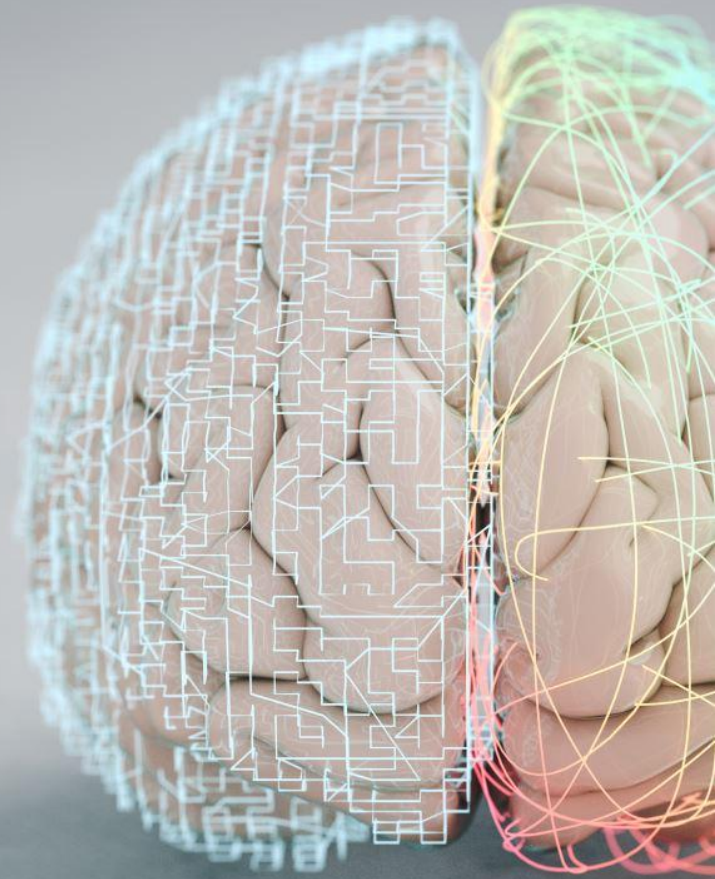
A blend of
therapeutic
components:

The brain's response to trauma,
The importance of fostering resiliency
and safety in healing
Culturally sensitive
Appropriate to symptoms & presentation



What is Neurotherapy?

- A holistic approach to healing the brain and nervous system with Neurofeedback and brain-based therapies.
- Focus on self-regulation, brain performance, and emotional resilience.
- Incorporates neuroscience and somatic psychology.





What is Neuro-Informed Therapy?

- Understanding Nervous System health and regulation underscore overall health and well-being.
- Rooted in fostering safety and connection.
- We cannot separate the biology from the person.
- Too often, physiological states become traits.
- Unfortunate tendency to attribute traits to personality..

All clinical complaints are expressions of a distressed brain and nervous system. (Case, 2024)

Neuro- Informed Counseling

- **EMDR (Eye Movement Desensitization and Reprocessing)**
- **Polyvagal Theory (PVT)**
- **Mindfulness**
- **Essential Oils (Aromatherapy)**

Each works on different levels:
cognitive, somatic, & sensory



What is it?

- Developed by Francine Shapiro
- Adaptive Information Processing Model
- Uses bilateral stimulation to reprocess trauma

How it works:

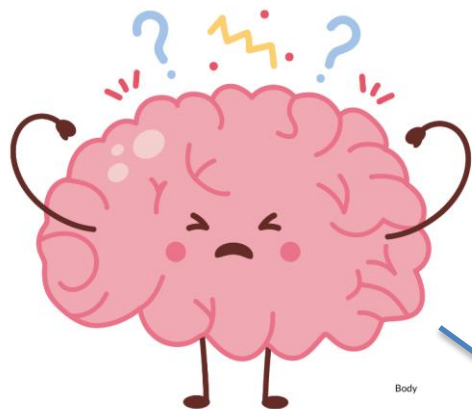
- Rewires traumatic memory networks
- Promotes adaptive memory integration

Applications: PTSD, anxiety, phobias, emotional distress

The background of the lower half of the slide is a textured green field with a white, torn-paper-like border at the top. The letters 'EMDR' are written in large, white, sans-serif font across the center of the green field.

EMDR

Dysregulated Brain & CNS



Trauma

Neurodivergence

Attachment

ADHD

Move from Maladaptively stored memory
to Adaptive memory.



When Combined: EMDR + Neurofeedback

- Exponentiate each therapy which provides quicker relief
- Shortens the duration of treatment

- **EMDR** processes the emotional charge of trauma
- **Neurofeedback** retrains the brain to have increased cognitive and emotional flexibility and regulation
- **Together**, they offer both **top-down and bottom-up** healing—targeting cognitive, emotional, and physiological layers of trauma



PolyVagal Theory

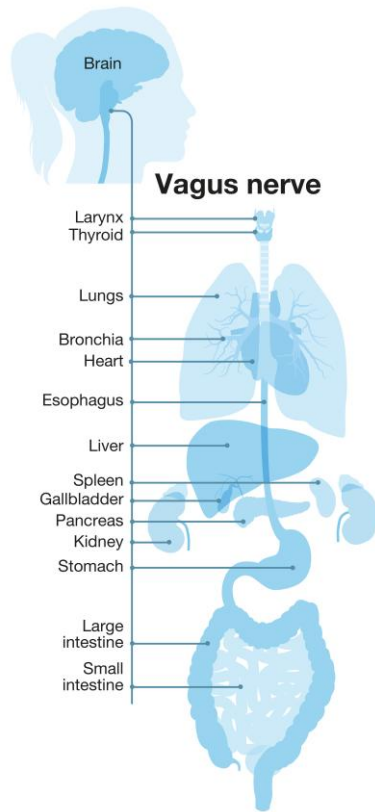
Developed by: Stephen Porges

Key Concepts:

- **Autonomic nervous system states:**
 - Ventral Vagal (safe)
 - Sympathetic (fight/flight)
 - Dorsal Vagal (shutdown)
- **Application in therapy:**
 - Tracking nervous system states
 - Building safety through co-regulation
 - Enhancing vagal tone through breath, sound, and connection



Vagus Nerve



The longest of the cranial nerves.

- Innervates: face, eyes, inner ear, vocal chords, viscera around abdominal organs, the heart and the lungs.
- The vagus nerve *is* the mind-body connection.
- The vagus nerve has 2 branches: ventral and dorsal.

The Three Circuits

Ventral

Safe & Connected
Regulated
Window of Tolerance

Sympathetic

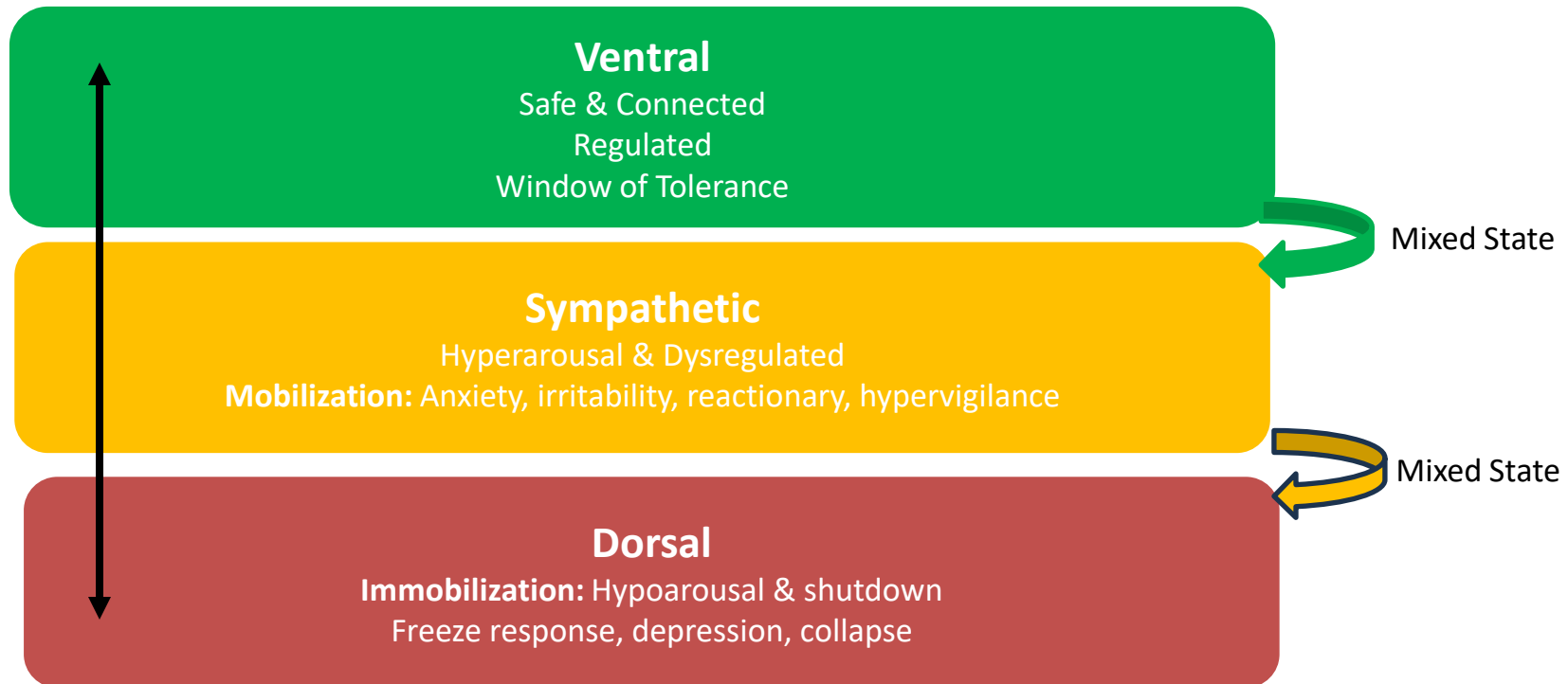
Hyperarousal & Dysregulated
Mobilization: Anxiety, irritability, reactionary, hypervigilance

Dorsal

Immobilization: Hypoarousal & shutdown
Freeze response, depression, collapse

©2025 Center for NeuroPotential

The Three Circuits



PolyVagal Interventions

1. Diaphragmatic Breathing
2. Palm Slides – Arm Slides
3. 5-4-3-2-1
4. Humming – singing
5. Movement – shake it out, short brisk walk



Definition:

- Nonjudgmental awareness of the present moment
- Safe Connection to the here and now

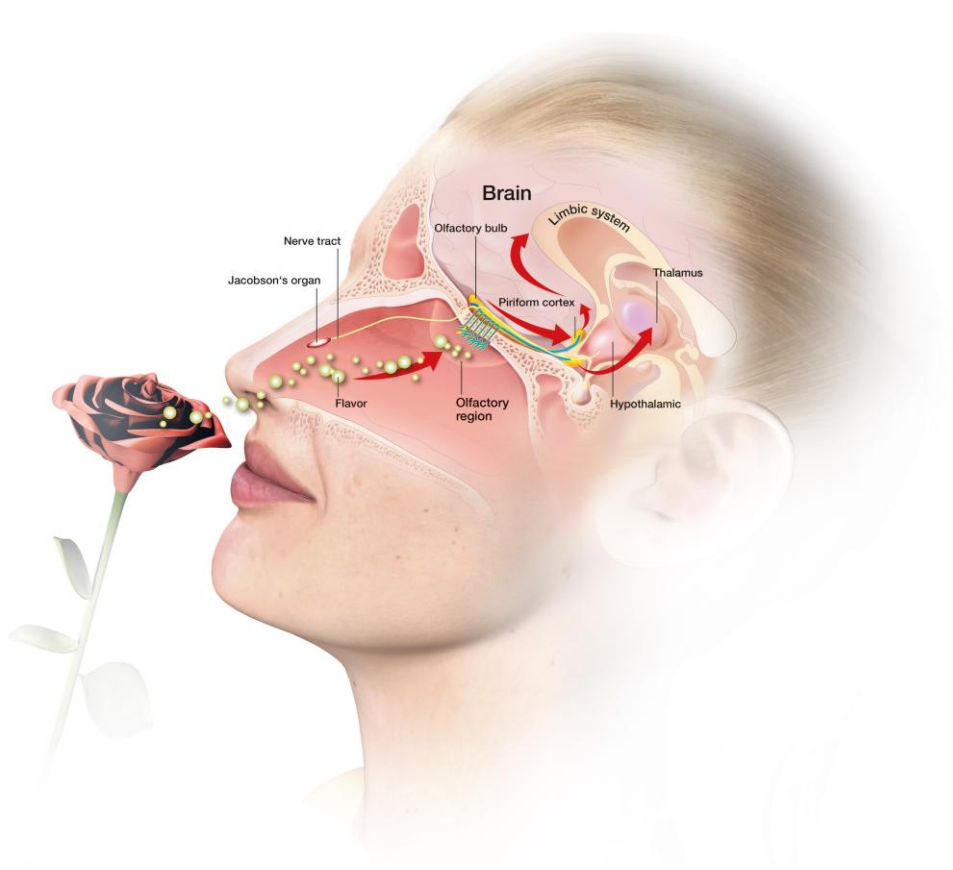
Benefits:

- Reduces amygdala activity (fear center)
- Enhances prefrontal cortex (regulation)
- Builds emotional resilience and presence

Techniques:

- Developing a Witness mindset
- Breath awareness
- Body scans
- Grounding practices

Mindfulness in Neurotherapy



Clinical Aromatherapy

- **How it works:**
 - Olfactory nerves connect directly to the limbic system (emotion center)
- **Common oils:**
 - • Lavender – Calming, anxiety relief
 - • Frankincense – Grounding, focus
 - • Peppermint – Uplifting, clarity
 - • Vetiver – Nervous system regulation
- **Usage:**
 - Inhalation during sessions
 - Anchoring with scent



Amy Palmer, PsyD, BCN, QEEG-DL

- Neuropsychologist
- From assessment to neurotherapy
- From DSM to personalized medicine
- Simple neurofeedback training to more complex
- Layering in brain photobiomodulation
- Developing remote options

Neurofeedback

- Neurofeedback is a type of biofeedback in which individuals are trained to improve their brain function by changing their brain's electrical activity, or brain waves.
- Neurofeedback is also often called EEG biofeedback.
- With Neurofeedback, your brain is encouraged to repeat healthier patterns of brain waves.
- Over time, these changes become closer to the new normal.

Fun Fact:

**Neurofeedback was discovered
with cats!**



What Neurofeedback Can Potentially Help

Attention

Emotional Regulation

Mood: Anxiety and Depression

Trauma Responses

Flexibility in shifting from resting to active brain states

Sleep

Executive Functioning

Learning

Memory

Obsessions and Compulsions

Math and Reading

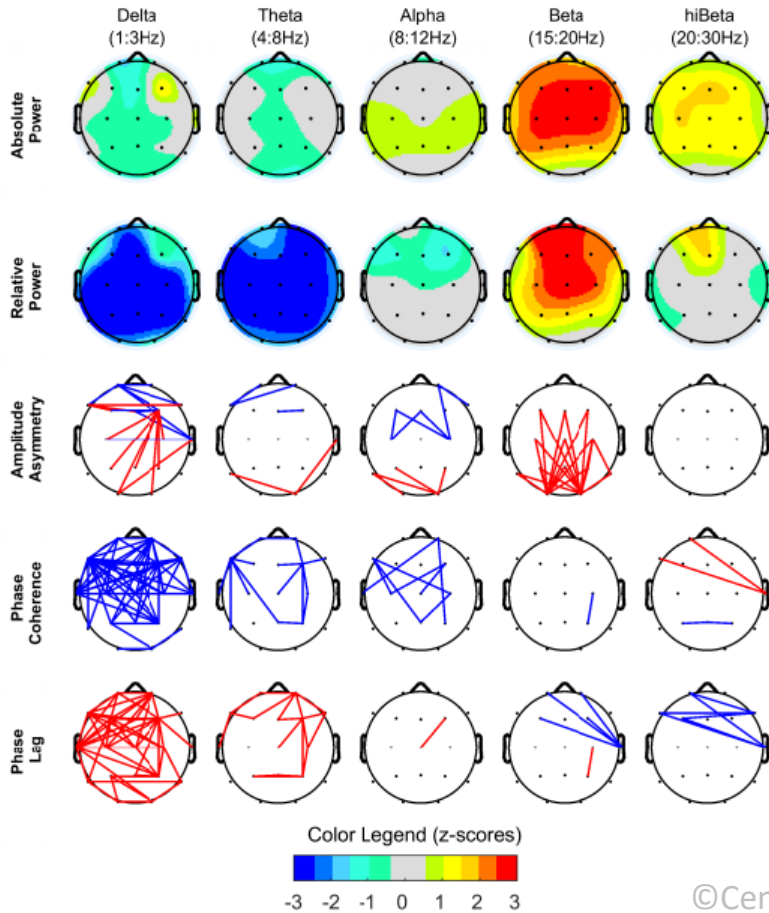




We are NOT
trying to train
individuals to be
“normal”

Montage: Linked Ears
Eyes Open

Summary of the Z-score analyses



©Center for NeuroPotential

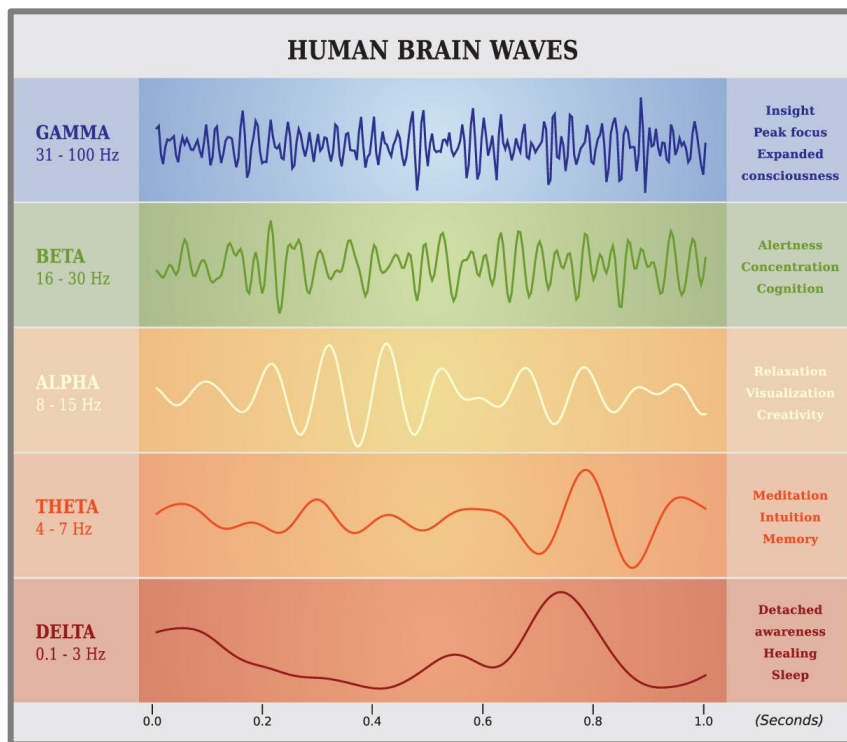
Q: How do we know what the brain needs to learn to improve symptoms?

A: With a QEEG Brain Map

Diagnosis and EEG / QEEG

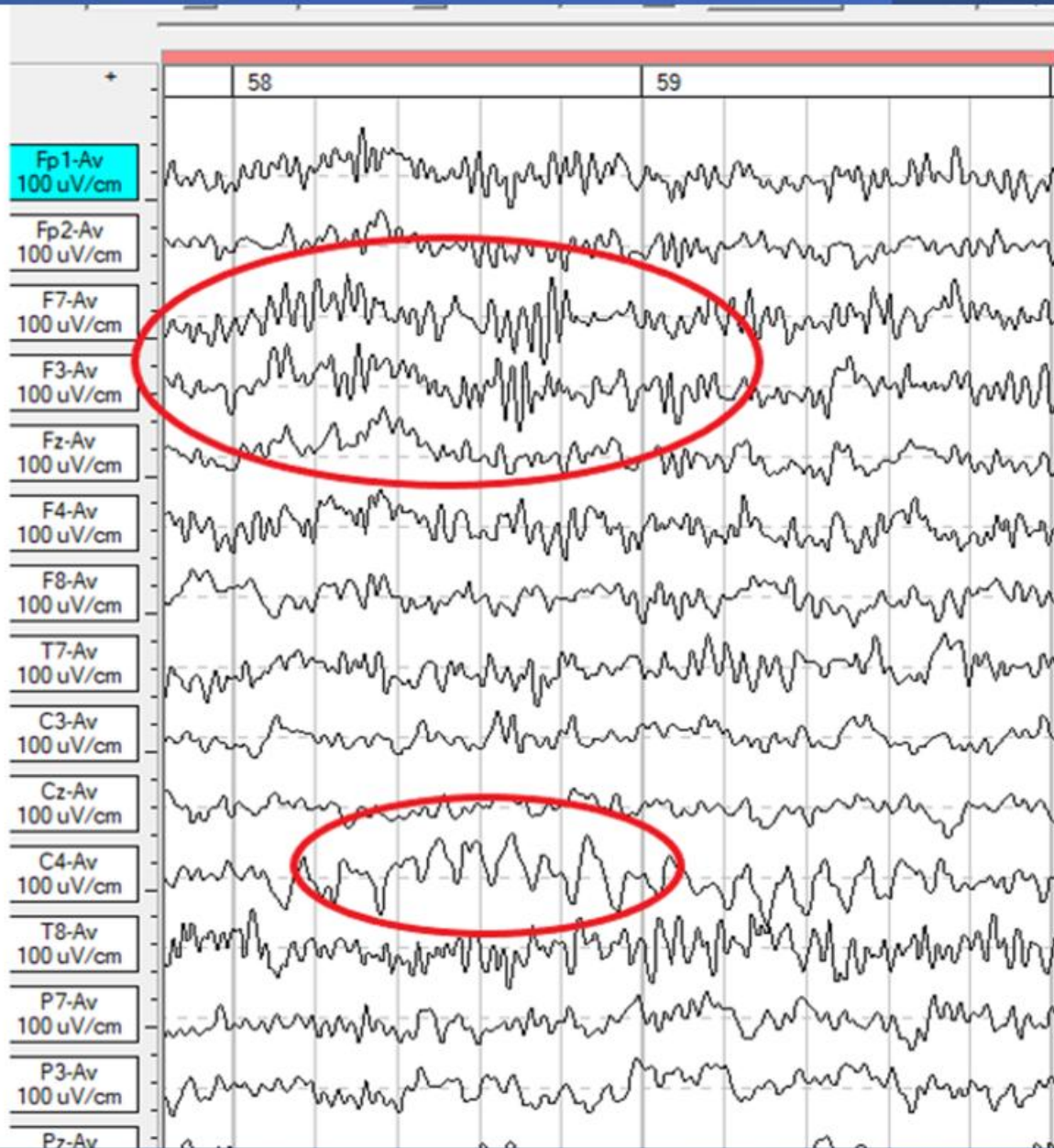
- QEEGs are NOT diagnostic!
- There are several ways problems with mood, attention/cognition, and social functioning can show up on the QEEG
- NFB is NOT a substitute for therapy or skill building





- Brainwaves are grouped and classified according to frequency, which are the number of cycles per second and are measured in hertz (Hz).
- No brain wave is good or bad, it's just how much of each you are making of each and in which regions.
- Brainwaves can be captured using EEG
- Quantitative EEG allows us to create a brain map

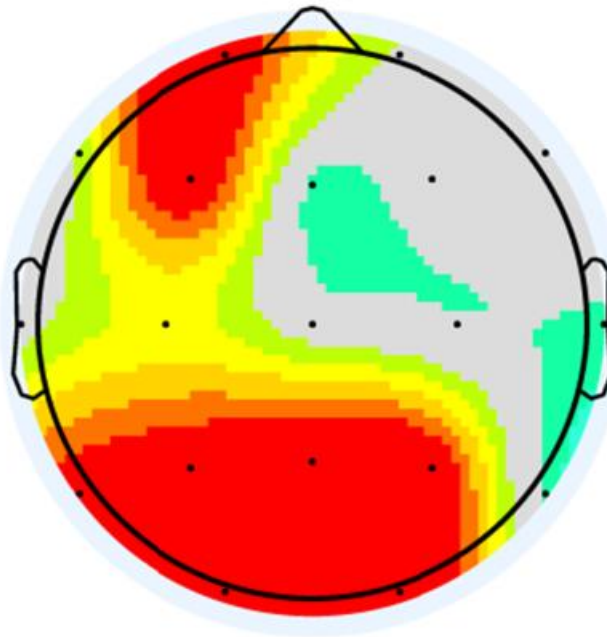
**Beta
spindling**



Mu

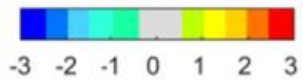
Montage: Linked Ears
Eyes Closed

Z-scored Alpha Peak



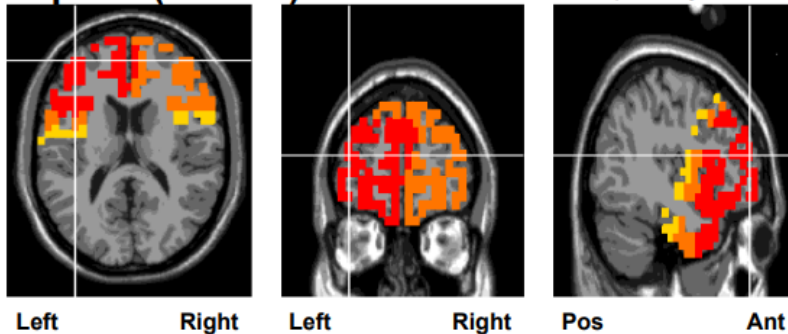
Ch	APF	Z-APF
FP1	12.6	3.0
FP2	9.7	0.5
F7	9.9	0.8
F3	12.7	3.2
Fz	8.7	-0.5
F4	9.5	0.4
F8	9.5	0.4
T3	9.6	0.3
C3	10.5	1.2
Cz	9.4	0.2
C4	9.0	-0.3
4	8.8	-0.5
T5	12.9	2.9
P3	13.0	3.1
Pz	13.0	3.4
P4	12.9	3.1
T6	9.1	-0.6
O1	12.8	3.3
O2	13.0	3.5

Color Legend (z-scores)

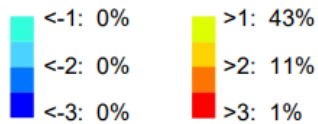


Alpha1 (8-10Hz)

Z-score: 3.5, Frequency: 10 Hz



Percentage Deviant Voxels Alpha1 (8-10Hz)



Brain Area:

Frontal Lobe
Middle Frontal Gyrus
Brodmann area 10

Function:

Strategic Processes
Memory Recall
Some Executive Functions
Executive Emotion And Planning

Possible Symptoms of Defect:

Executive Function Problems
Compulsive Thoughts or Behaviors
Impulsive
Oppositional
Concentration Problems
Amnesia
Aphasia
Anger Control Problems
Low Motivation
Mood Swings
Delusional
Failure to Initiate Actions
Obsessive Thoughts about Self
Multitasking Problems

Online information:

https://en.wikipedia.org/wiki/Brodmann_area_10
www.fmriconsulting.com/brodmann/BA10.html

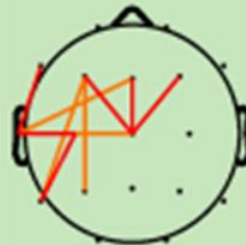
Ch	B	Z-B
Cz-C4	0.3	-4.9
C4-Pz	0.2	-3.9
C4-P4	0.4	-3.7
Cz-P4	0.2	-3.2
C3-C4	0.1	-3.0
F3-C4	0.1	-3.0
C3-P4	0.1	-2.8
C3-P3	0.4	-2.7
Fz-C4	0.2	-2.7
Cz-Pz	0.4	-2.6

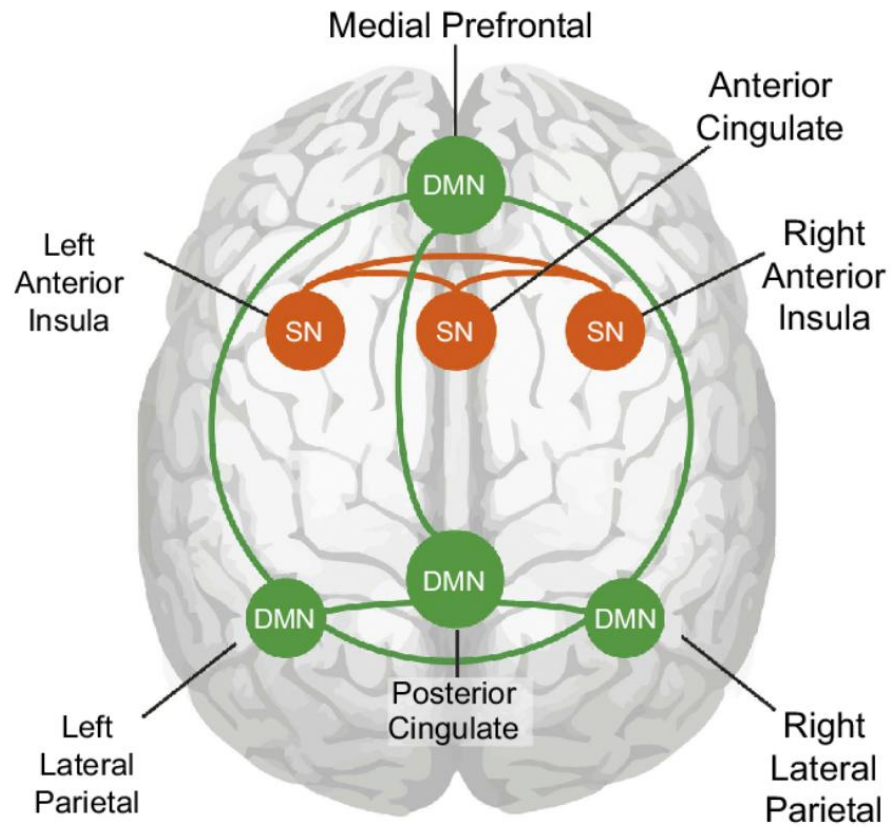
Ch	hB	Z-hB
C3-T5	0.1	-4.0
F4-Cz	0.2	-3.8
T3-C3	0.0	-3.5
Fz-Cz	0.4	-2.8
F3-Cz	0.2	-2.7
F3-T3	0.0	-2.7
F3-P3	0.1	-2.6
C3-P3	0.4	-2.5
T3-Cz	0.0	-2.4
F4-P4	0.0	-2.4



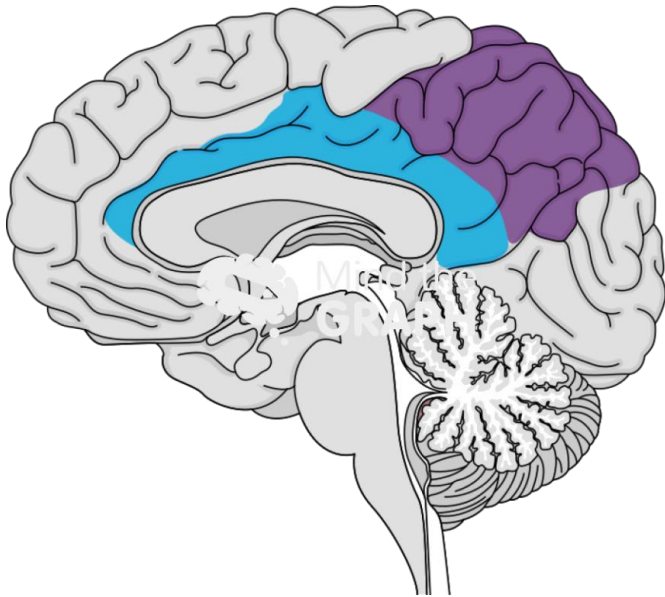
Ch	B	Z-B
C4-Pz	57.9	3.3
C4-P3	72.5	2.9
Fz-P4	77.3	2.8
F3-P4	80.4	2.8
C4-P4	48.2	2.8
F4-P3	80.8	2.7
F4-Pz	73.4	2.6
F4-P4	75.5	2.6
F3-C4	67.4	2.6
Cz-P4	58.6	2.6

Ch	hB	Z-hB
F7-T3	87.5	2.9
F3-Cz	59.7	2.9
C3-T5	68.3	2.8
Fz-Cz	46.1	2.6
T3-C3	79.1	2.5
F3-P3	75.8	2.4
F3-T5	83.3	2.3
T3-Cz	79.4	2.3
Fz-T3	81.1	2.3
F3-T3	79.6	2.3



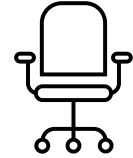


Cingulate Gyrus



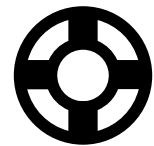
Anterior Cingulate is the CEO/Project Manager

- Choses from competing stimuli
- Error detection
- OCD tendencies
- Emotional regulation
- Anxiety



Posterior Cingulate is the Lifeguard

- Threat detection from environment
- Rumination
- Worry
- Negative thought loops
- Hypervigilance





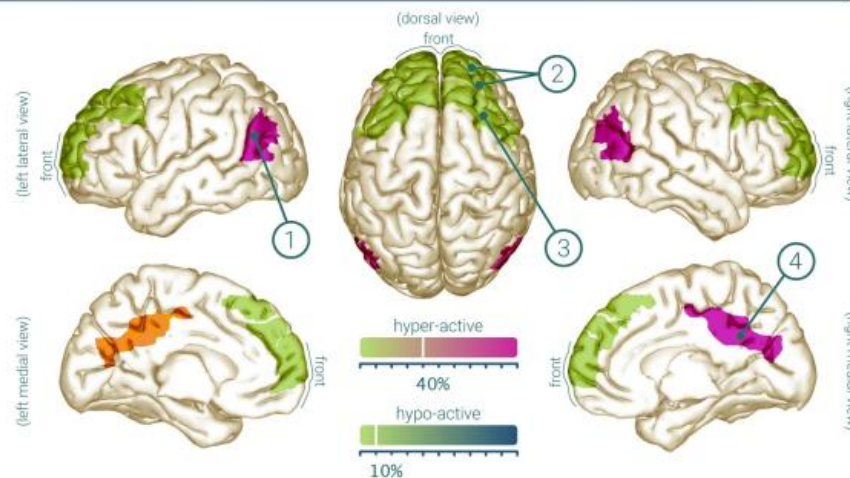
RESTING-STATE NETWORKS:

THE DEFAULT MODE NETWORK

The Default Mode Network (DMN) is active during rest and is associated with self-reflective processes or mental simulation. Low DMN activity may reflect an inability to switch from a task-oriented state to a rest-oriented state. Abnormal DMN activity has been associated with a number of psychological disorders.

NETWORK ACTIVITY

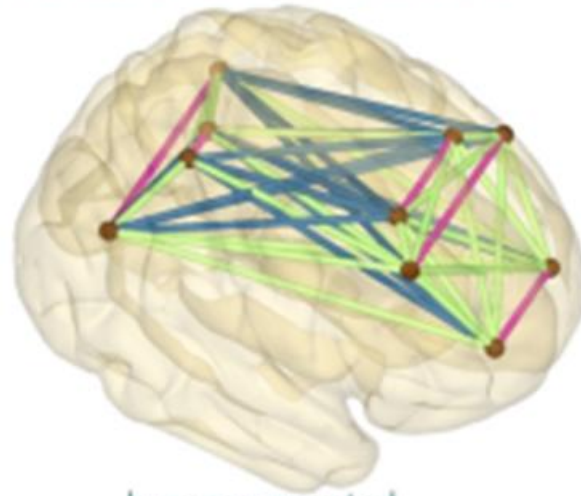
The DMN consists of frontal brain areas that are known to be involved in higher executive functions such as working memory, planning and cognitive control. The Angular Gyrus is known to be involved in allocation of attention and the Posterior Cingulate Gyrus is associated with self-referential processes.



Brain Areas Involved:

1. Angular Gyrus (BA39)
 2. Middle Frontal Gyrus (BA9 & 10)
 3. Supplementary Motor Area (BA8)
 4. Posterior Cingulate Gyrus (BA31)
- (BA=Brodmann Area)

NETWORK CONNECTIVITY



hyper-connected



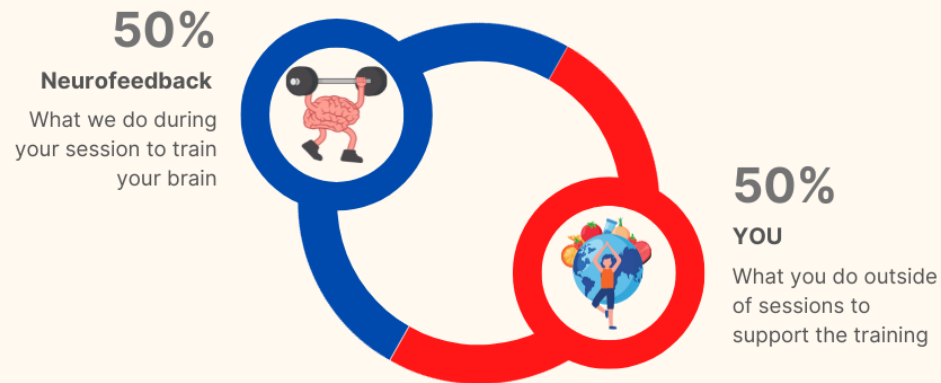
11%

hypo-connected



38%

Reaching Your Neurofeedback Goals



Neurofeedback at CNP: In-Office Neurofeedback Sessions



- An EEG cap is placed, and ear clips are connected
- Specific electrode locations are gelled
- Client watches something relaxing on Netflix
- Auditory and visual feedback is provided (tones and screen dimming)
- No conscious effort required....the brain figures it out!

Neurofeedback at CNP: Remote Neurofeedback



- An EEG cap is placed, and ear clips are connected
- No gel
- Client watches something relaxing on YouTube
- Auditory and visual feedback is provided (sound volume and screen dimming)
- Telehealth check-ins every two weeks, with support available in-between sessions

Rating the Research

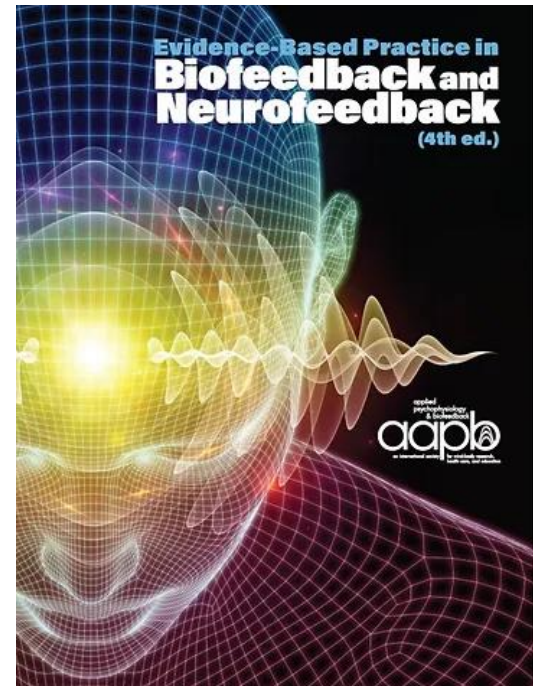
Level 1: Not Empirically Supported

Level 2: Possibly Efficacious

Level 3: Probably Efficacious

Level 4: Efficacious

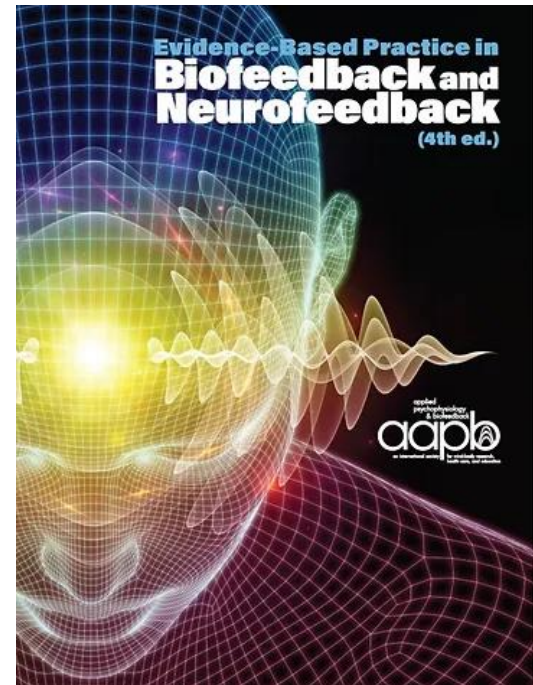
Level 5: Efficacious and Specific



Rating the NFB Research

Level 3: Probably Efficacious

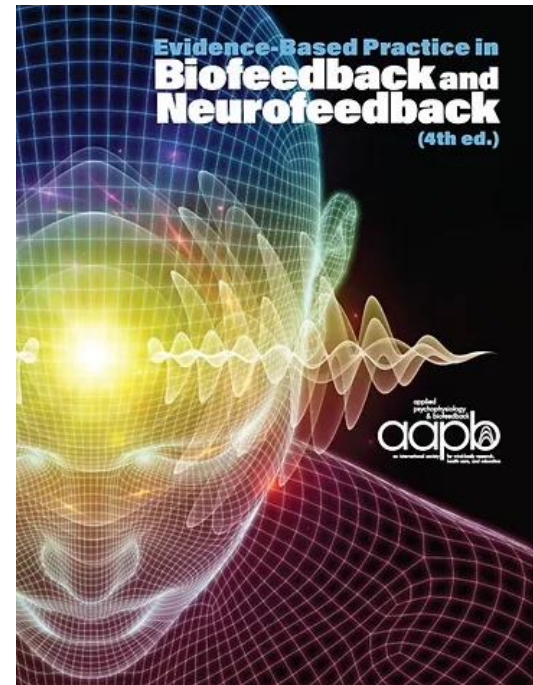
- Substance Use Disorders
- Concussion



Rating the NFB Research

Level 4: Efficacious

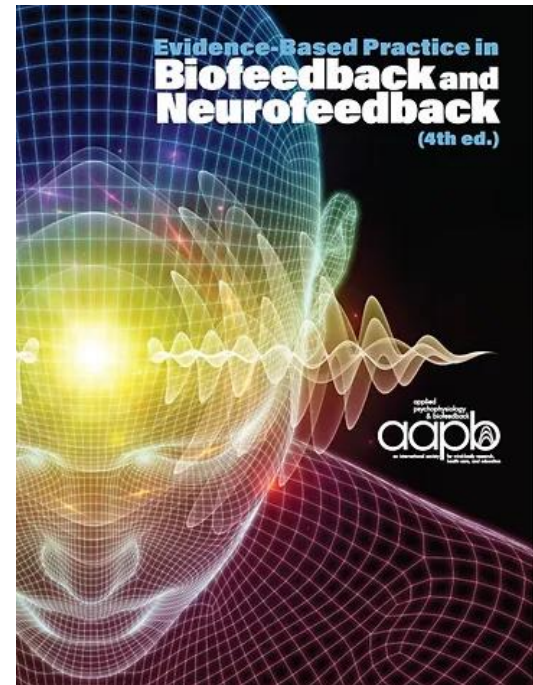
- Generalized Anxiety Disorder
- Post-Traumatic Stress Disorder (PTSD)
- Seizures



Rating the NFB Research

Level 5: Efficacious and Specific

- ADHD
- Depression



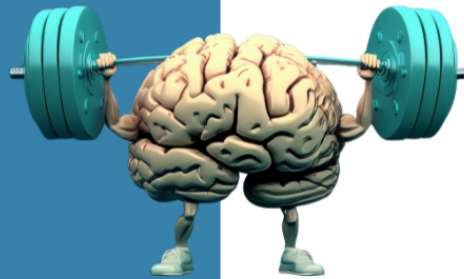
NOT ALL NEUROFEEDBACK IS CREATED EQUAL

When choosing a provider, consider:

- What is their background with understanding the brain?
- Are they board certified?
- What type of neurofeedback are they using? Is it the type that the research is based on?
- Are they using QEEG brain maps to guide neurofeedback protocols?



Case Studies



Patient Neurofeedback Testimonial

“It’s like night and day. Neurofeedback has made such a big difference for our family.”



Center for
NeuroPotential

Case Example: Maja

- Woman in mid-30s with significant trauma history
- Participated in therapy (summer 2023– March 2025)
- Participated in NFB (summer 2023 – fall 2024)
- NFB goals: improved emotional regulation, attention, and sleep

A large red circular graphic on the left side of the slide, partially cut off by the edge.

QEEG Features : Maja

Beta spindling

Beta and hiBeta excesses

Theta excesses

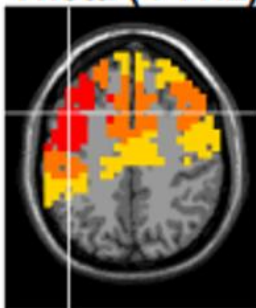
Gamma deficits

Frontal delta deficit

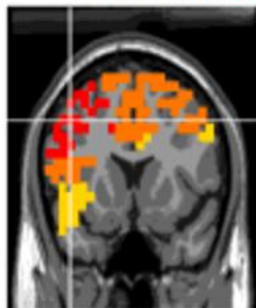
High Theta-to-Beta ratio (TBR);
4:1

Theta (4-7Hz)

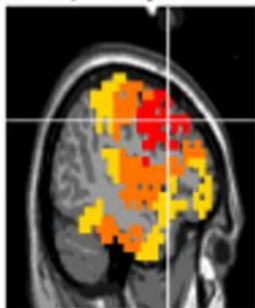
Z-score: 3.2, Frequency: 5 Hz



Left Right



Left Right



Pos Ant

Brain Area:

Frontal Lobe
Middle Frontal Gyrus
Brodmann area 9

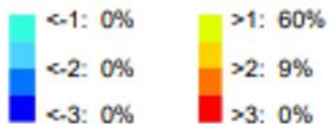
Function:

Working memory
Cognitive flexibility
Planning
Inhibition
Abstract Reasoning

Possible Symptoms of Defect:

Executive Function Problems
Concentration Problems
Impulsive
Oppositional
Anger Control Problems
Depressed
Failure to Initiate Actions
Obsessive Thoughts about Self
Multitasking Problems
Self-Esteem Problems (R)
Poor Social Skills (R)

Percentage Deviant Voxels Theta (1-3Hz)



Online information:

https://en.wikipedia.org/wiki/Brodmann_area_9
www.fmriconsulting.com/brodmann/BA9.html

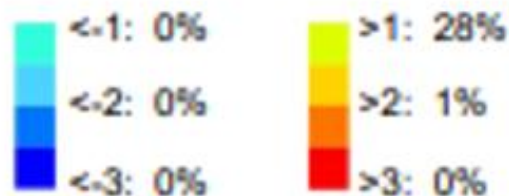
Q1 sLORETA Deviant Voxels: Theta

Percentage Deviant Voxels Theta

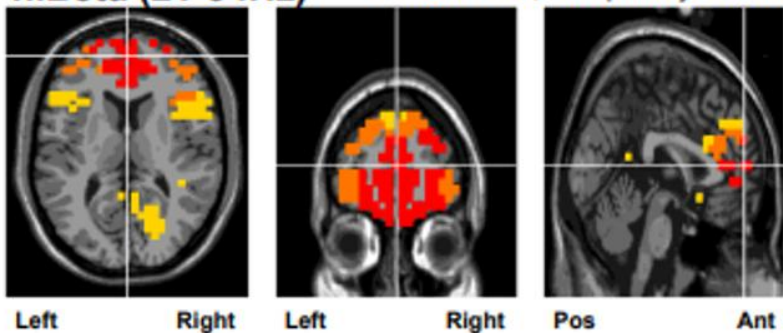


Q2 sLORETA Deviant Voxels: Theta

Percentage Deviant Voxels Theta



hiBeta (21-34Hz) Z-score: 2.8, Frequency: 21 Hz



Brain Area:

Frontal Lobe
Medial Frontal Gyrus
Brodmann area 10

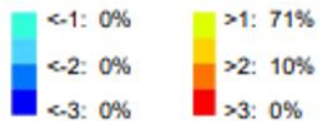
Function:

Strategic Processes
Memory Recall
Some Executive Functions
Executive Emotion And Planning

Possible Symptoms of Defect:

Executive Function Problems
Compulsive Thoughts or Behaviors
Impulsive
Oppositional
Concentration Problems
Amnesia
Aphasia
Anger Control Problems
Low Motivation
Mood Swings
Delusional
Failure to Initiate Actions
Obsessive Thoughts about Self
Multitasking Problems

Percentage Deviant Voxels hiBeta (21-34Hz)

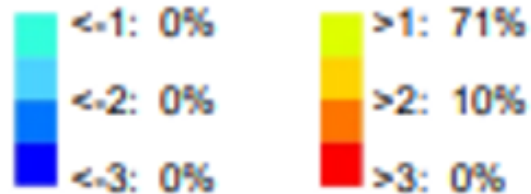


Online information:

https://en.wikipedia.org/wiki/Brodmann_area_10
www.fmriconsulting.com/brodmann/BA10.html

Q1 sLORETA Deviant Voxels: hiBeta

Percentage Deviant Voxels hiBeta

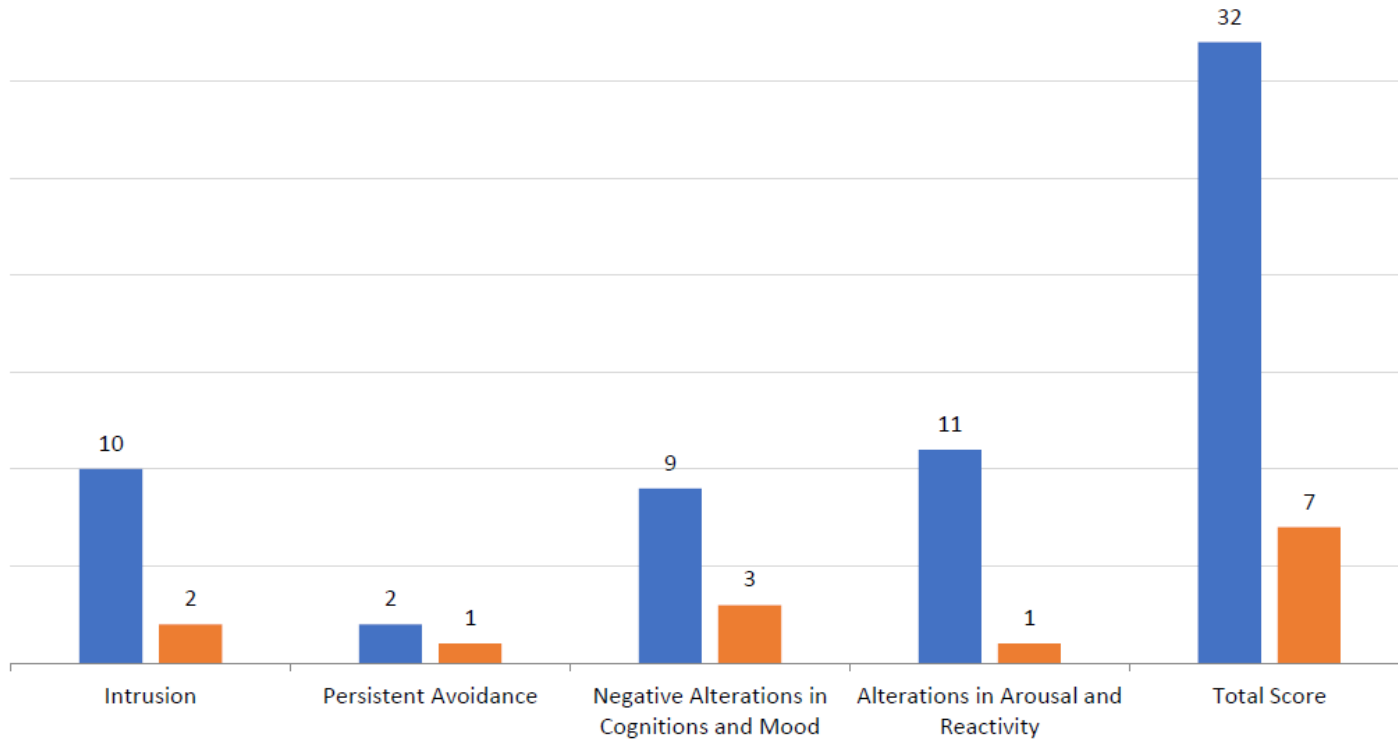


Q2 sLORETA Deviant Voxels: hiBeta

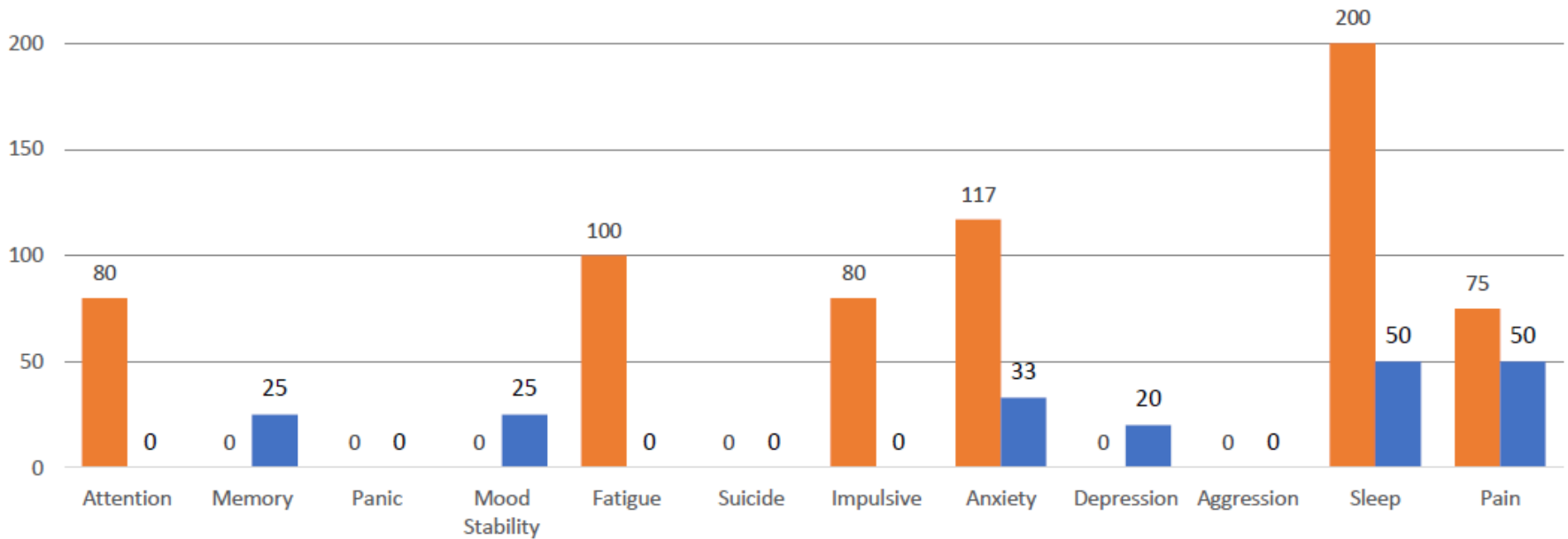
Percentage Deviant Voxels hiBeta



PCL-5 Changes



NPQ Changes



Case Example: Kal

- 9-year-old diagnosed with anxiety, ADHD, autism
- Participated in therapy (July 2024 – Oct 2024)
- Participated in NFB (July 2024 – present)
- Strengths: Kind, thoughtful, helpful, loving
- Challenges: Disruptive outbursts, low self-esteem, bullied at school for being “weird”, food sensitivities

QEEG Features : Kal

Mu content

Beta and hiBeta excesses (central and posterior)

Alpha excesses (central and frontal), esp. at Anterior Cingulate

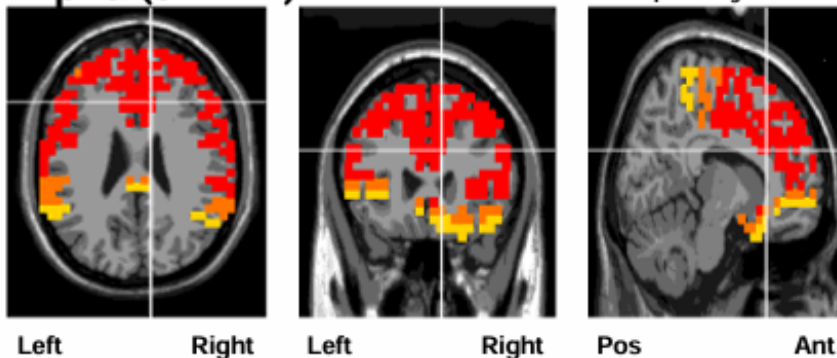
Gamma deficits

Deficit of loBeta/SMR

Alpha Hypocoherence in central/frontal regions; hypercoherence in central/posterior regions

Alpha (8-12Hz)

Z-score: 4.6, Frequency: 10 Hz



Brain Area:

Limbic Lobe
Anterior Cingulate
Brodmann area 32

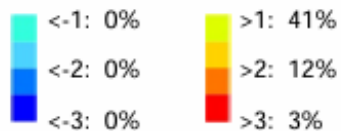
Function:

Motor Planning

Possible Symptoms of Defect:

Impaired Motor Control
Depressed

Percentage Deviant Voxels Alpha (8-12Hz)

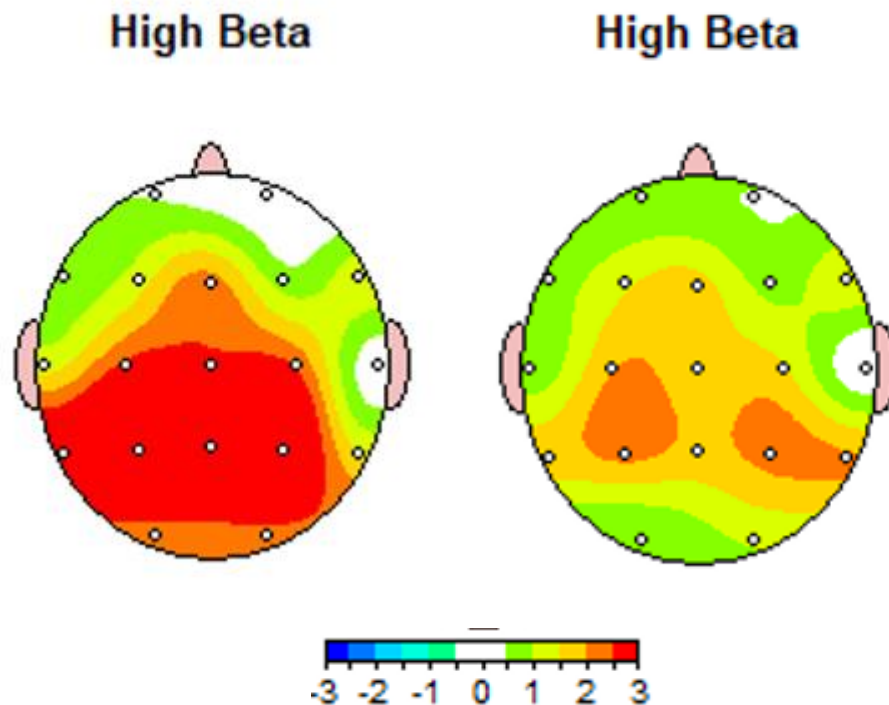


Online information:

https://en.wikipedia.org/wiki/Brodmann_area_32
www.fmriconsulting.com/brodmann/BA32.html

NFB Training & QEEG changes

- Z-Score training at central and posterior sites: reduced faster frequencies and reduced central/posterior hypercoherence



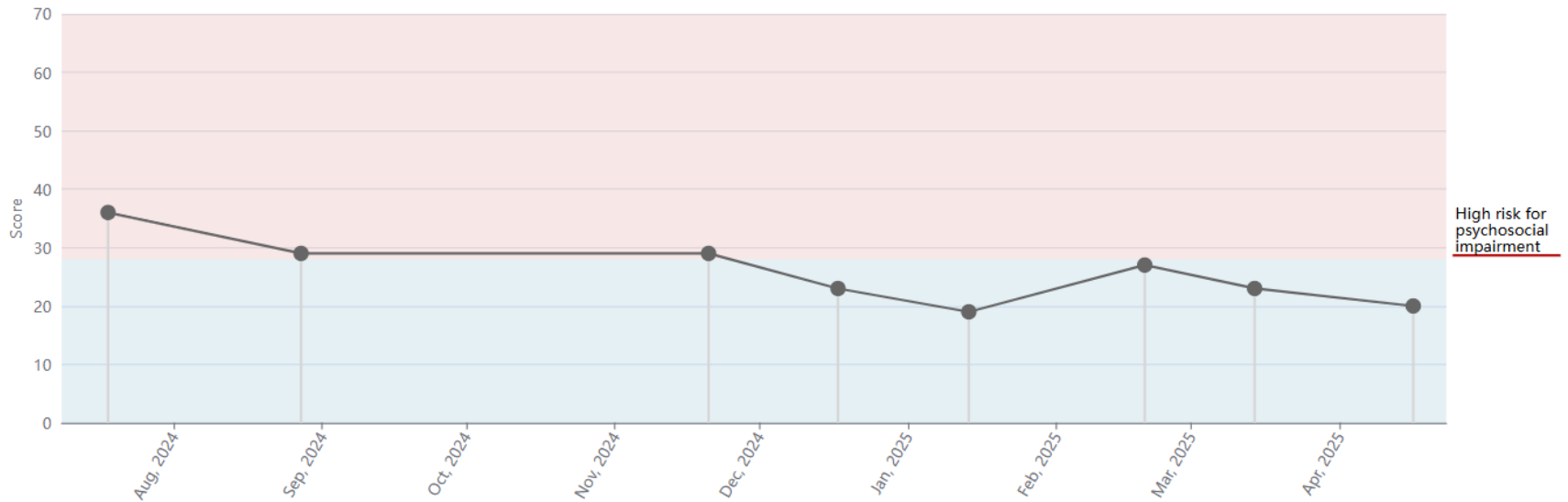
NFB Training and QEEG Changes

- Added gamma photobiomodulation to address gamma deficits



Kiddo PSC-35 Ratings

PSC-35: Pediatric Symptom Checklist



Remote Case Example: Jane

- 60ish-year-old female with cPTSD
- Started EMDR therapy (May 2023 – present)
- Started remote NFB (Jan 2025 – present)



QEEG Features : Jane

Widespread beta spindling

HiBeta excesses

Fast alpha (PDR around 12 Hz)

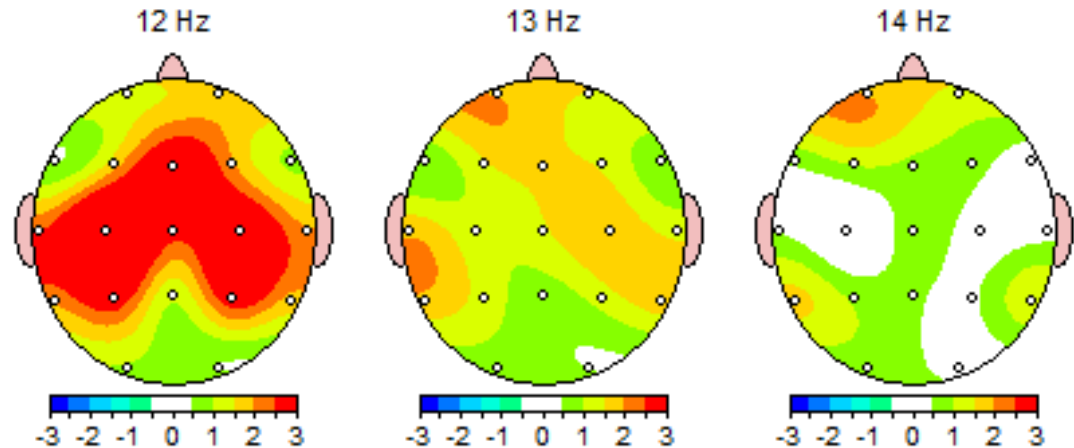
Mu (around 12.5 Hz)

Left frontotemporal alpha (9 – 11 Hz) intensities

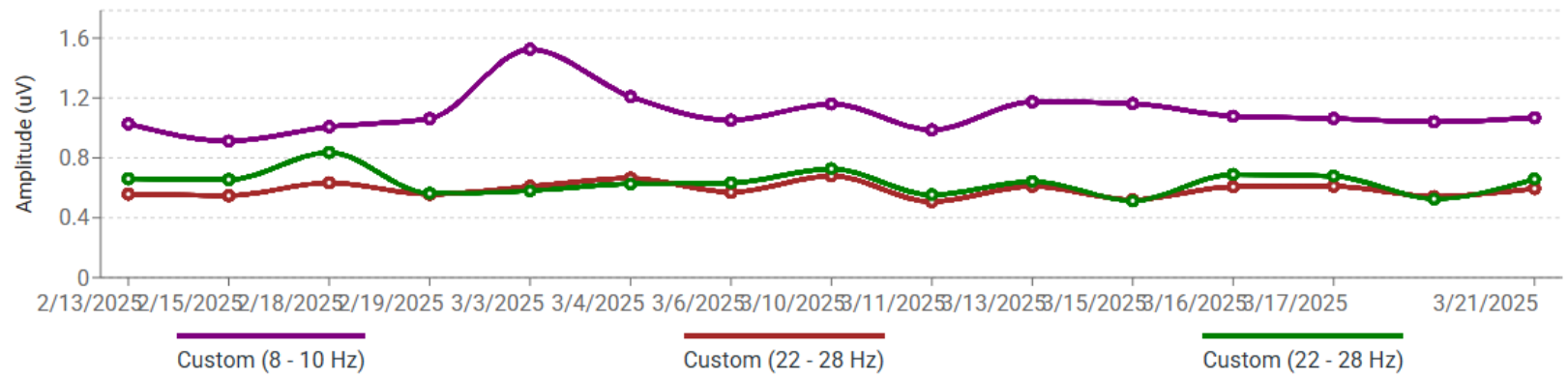
Relative deficit of slower posterior alpha in 8 – 10 Hz

Why QEEGs Matter!

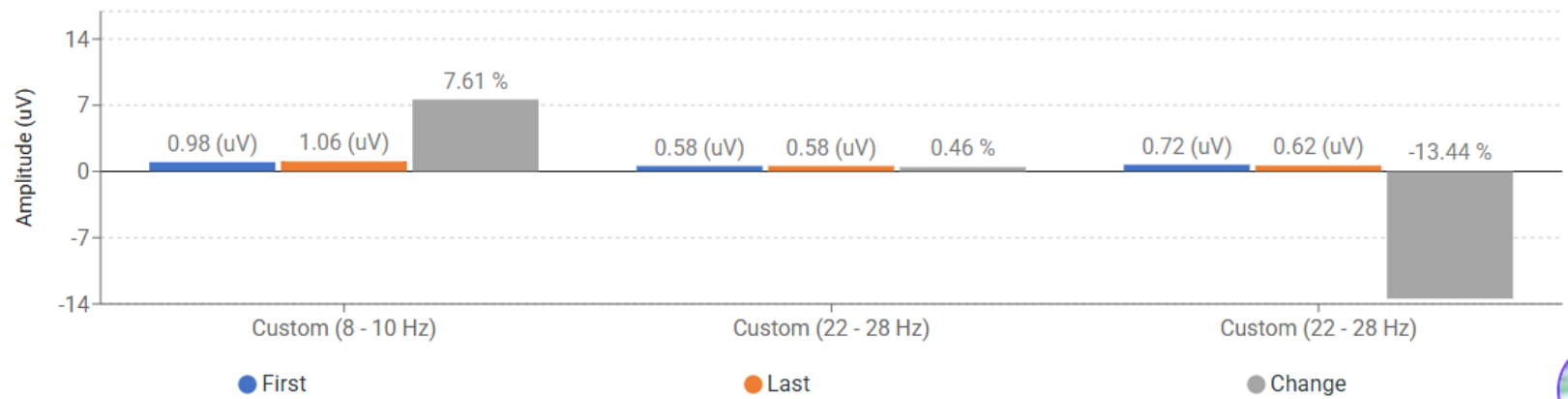
- Jane has fast alpha, which extends into the loBeta range
- SMR training is often used for people with inattention and anxiety
- SMR rewards loBeta (12 – 15 Hz) at the sensory motor strip (C3, Cz, or C4)



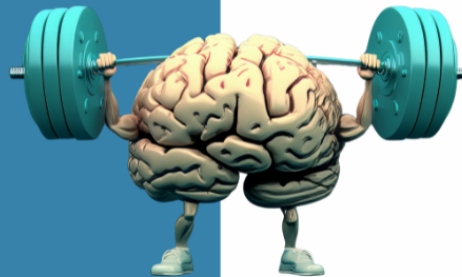
Amplitude Progression, Across Runs



First vs. Last Quartile Summary



Brief Snapshots



“ Patient Neurofeedback Testimonial

“It’s been a huge,
huge success”

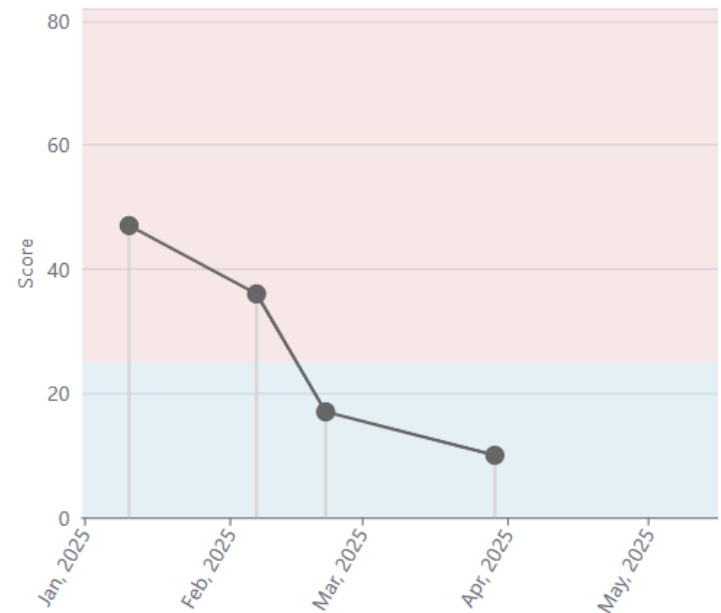
Mom of a Tween



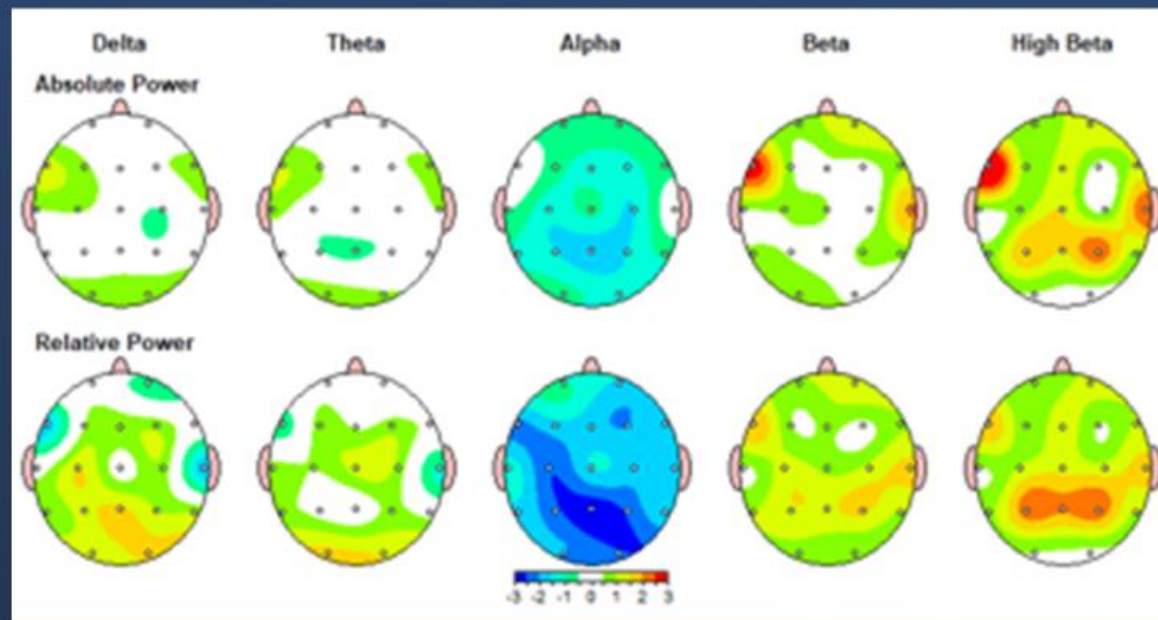
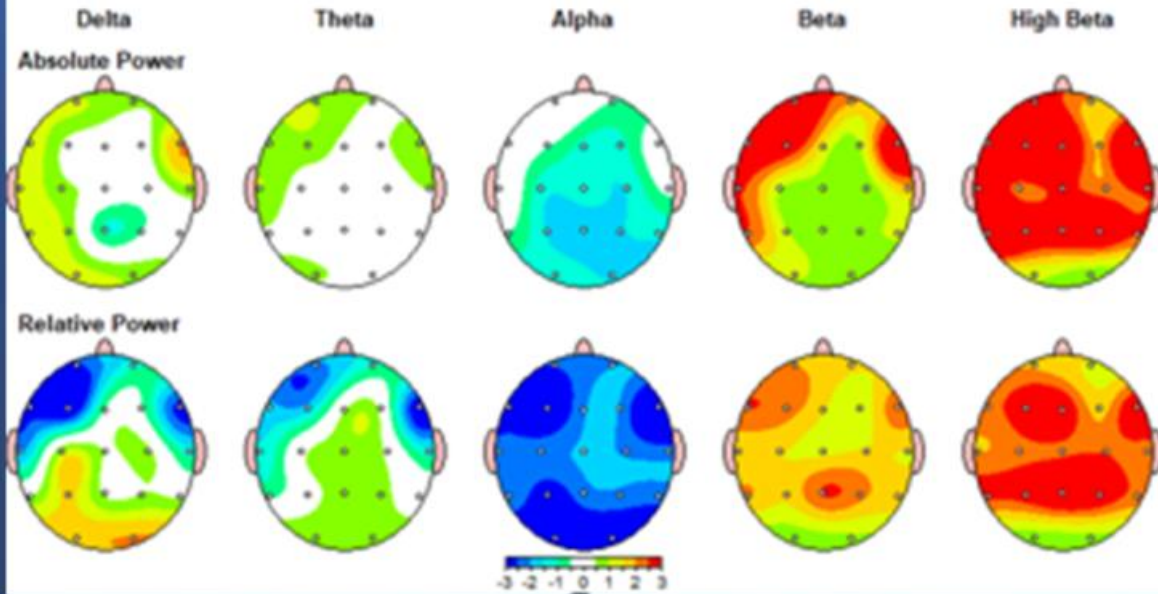
Remote NFB for a Tween

- Refused to participate in therapy
- Initial SCARED ratings were in clinical range for:
 - Panic Disorder
 - GAD
 - Separation Anxiety
 - Social Phobia
 - School Avoidance
- Did remote NFB for 3 months
- Final SCARED ratings did not have any scales in the clinical range

SCARED: Screen for Child Anxiety Related Disorders-Parent Version



Z Scored FFT Summary Information



Demo: BrainBit Flex and Dive





client NEUROFEEDBACK
TESTIMONIALS

“It feels really good to feel alert
and present”

CenterForNeuroPotential.com



Client Testimonial



I felt wildly out of control. Now I feel I am back in control of my emotions and reactions.





Center for
NeuroPotential

Client Testimonial



**Since starting
Neurofeedback,
she has more initiation
and internal motivation**



Testimonial

“Hi Everyone at CNP! I'm happy to come here and report 2 months of no Sertraline and the most stable grounding and processing and discernment of myself and the space I hold in my world. Again often so grateful for you all. NF and EMDR (Amy & Deb and Team) you helped me save my life!”

I just wanted to take the time to express my sincere gratitude for the treatment I received in 2019 for PTSD at your center. Deb Scully was my clinician from the beginning to the end of my sessions. I felt very supported as she gently guided me throughout my neuro feedback and EMDR sessions.

I entered treatment because I was suffering from the trauma of a recent surgery which caused me to avoid certain anxiety producing situations. In the past I had been diagnosed with an “anxiety disorder” but now my life had become filled with extreme limitations and every day I struggled to cope.

The first time I noticed the treatment was working was when I was able to drive over bridges that I had been previously avoiding, this in and of itself was nothing short of a miracle. During the treatment I continued to have several more breakthroughs and most of my symptoms gradually faded away one by one. Anxieties that I have dealt with for many years became a thing of the past, after years of talk therapy had failed to bring relief.

My life has changed, I am writing this in 2023
and no longer suffer from any anxiety issues as I
believe my PTSD has been healed.

I can never thank this center
or my clinician Deb Sully enough for
giving me back my life.

Thank you from the depths of my being.

Thank You!



Questions??



How to contact us:

contact@centerforneuropotential.com