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calo neurotherapies

Brain Based Interventions for Attachment and Developmental Trauma

Description: This presentation will explore the primary functions of the brain in emotional, behavioral, and relational functioning, and how neurology can be effectively impacted by certain brain based therapeutic interventions in a population with attachment/developmental trauma. It will provide participants with an initial understanding of the types of neurological based interventions and the process and complementary interventions which are best to accompany them.

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Brain Based Interventions

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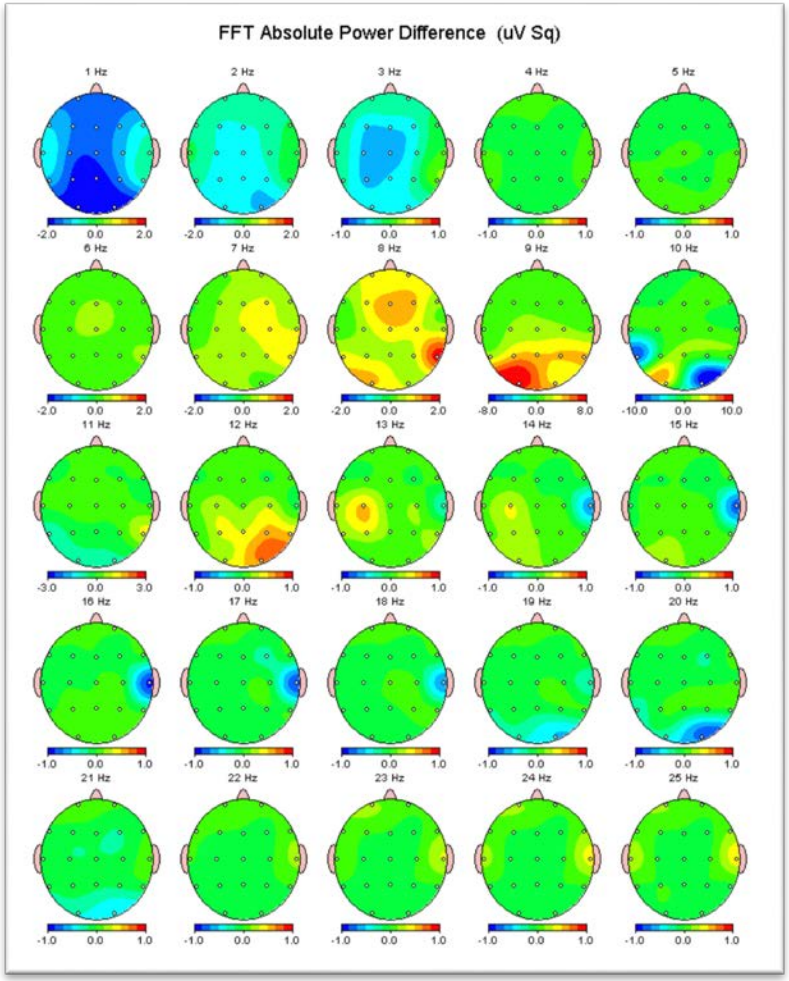
- Dyadic Biofeedback
- Transcranial Magnetic Stimulation (TMS)
- Cranial Electro-Stimulation (TDcS)
- Audio/Visual Entrainment
- Bilateral stimulation
- Safe and Secure Protocol (SSP)
- Integrative listening System (iLS)
- **Neurofeedback**

Dyadic Biofeedback

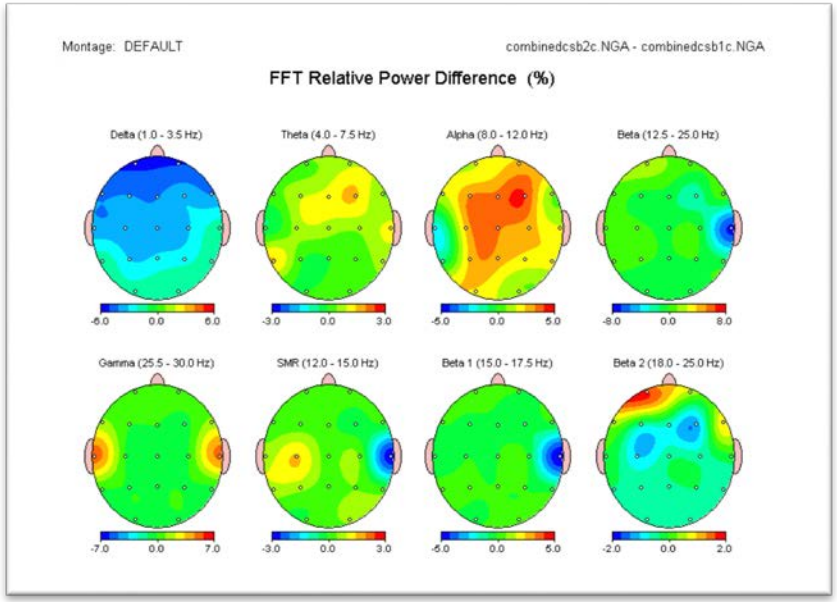
Staying inside the "zone of communication"

Dyadic Biofeedback

Alpha-Stim Results



Alpha stim conducted pre and post qEEG evaluations on 30 subjects using Alpha-Stim.



Neurofeedback Prevalence

We estimate over 15,000 clinicians, world-wide are using Neurofeedback. The represented professions are inclusive of: psychology, counseling, social work, marriage and family therapy, nursing, neurology, pediatrics, rehabilitation medicine, physical therapy, occupational therapy, naturopathic medicine, speech and language pathology, chiropractic, psychiatry, child and adolescent psychiatry, and family medicine.

QEEG Brain Map

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Teen Boy Background

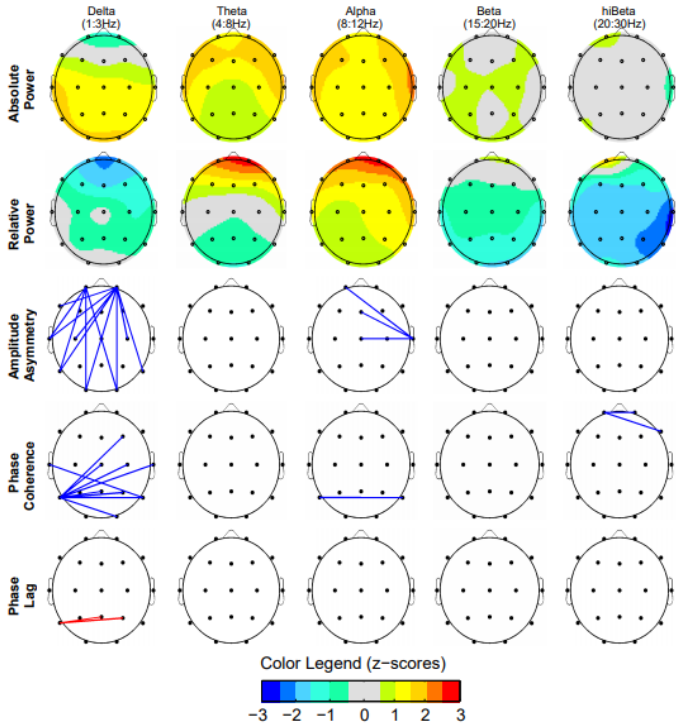
This child lived at home with his biological mother and his adoptive father. His biological father was emotionally abusive and occasionally physically abusive towards him. He would leave the child and his mother when the boy was still an infant. At that time, the child and his mother began living with the mom's grandparents and the child had limited contact with his biological father. Eventually, his biological father agreed to terminate his parental rights when the child was 4-years old. After his parental rights were terminated, The child's stepfather adopted him. The child had no contact with his biological father.

- Generalized Anxiety Disorder (GAD)
- Posttraumatic Stress Disorder (PTSD)
- Major Depressive Disorder
- Attention Deficit Hyperactivity Disorder (ADHD), Combined Type

Attachment/Developmental Trauma qEEG

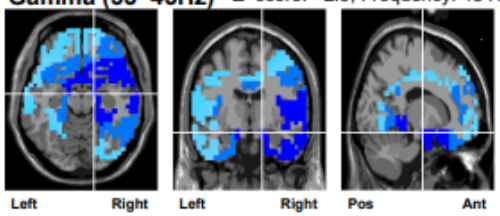
EEG ID: 542196
Test Date: 2020−01−30
Age: 14.87
Gender: Male
Montage: Linked Ears
Eyes Open

Summary of the Z−score analyses



Gamma (35−45Hz)

Z−score: −2.9, Frequency: 45 Hz



Brain Area:
Limbic Lobe
Parahippocampal Gyrus
Brodmann area 28

Function:
Memory
Recognition

Symptoms of Defect:
Facial Recognition Problems
Auditory Agnosia

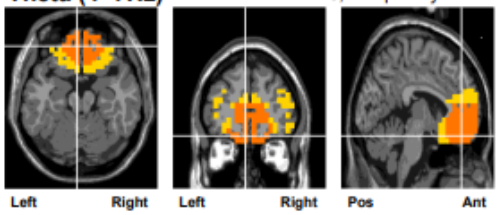
Percentage Deviant Voxels Gamma (35−45Hz)

<−1: 64%
<−2: 14%
<−3: 0%
>1: 0%
>2: 0%
>3: 0%

Online information:
https://en.wikipedia.org/wiki/Brodmann_area_28
www.fmriconsulting.com/brodmann/BA28.html

Theta (4−7Hz)

Z−score: 2.3, Frequency: 7 Hz



Brain Area:
Frontal Lobe
Orbital Gyrus
Brodmann area 11

Function:
Planning
Reasoning
Decision making

Symptoms of Defect:
Executive Function Problems
Disturbances of Mood or Thoughts
Impulsive
Oppositional
Apathy
Mutism
Aggression
Compulsion
Self−Image Issues
Derealization
Anger Control Problems
Low Motivation
Mood Swings
Delusional
Obsessive Thoughts about Self
Multitasking Problems

Percentage Deviant Voxels Theta (1−3Hz)

<−1: 6%
<−2: 0%
<−3: 0%
>1: 7%
>2: 1%
>3: 0%

Online information:
https://en.wikipedia.org/wiki/Brodmann_area_11
www.fmriconsulting.com/brodmann/BA11.html

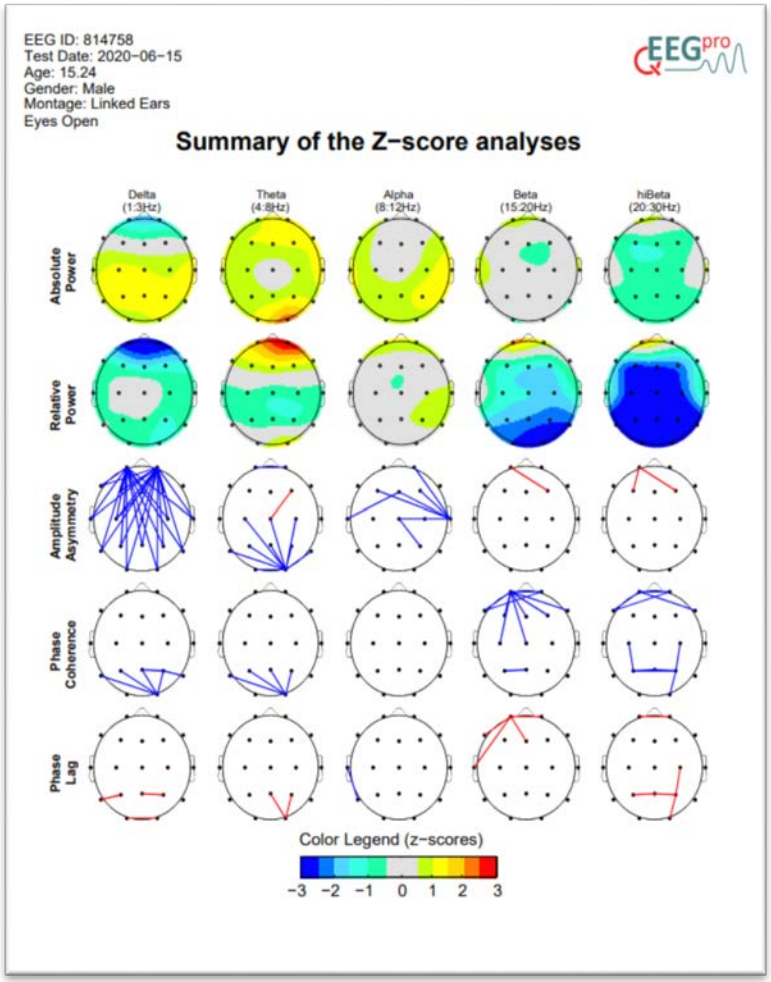
Neurofeedback

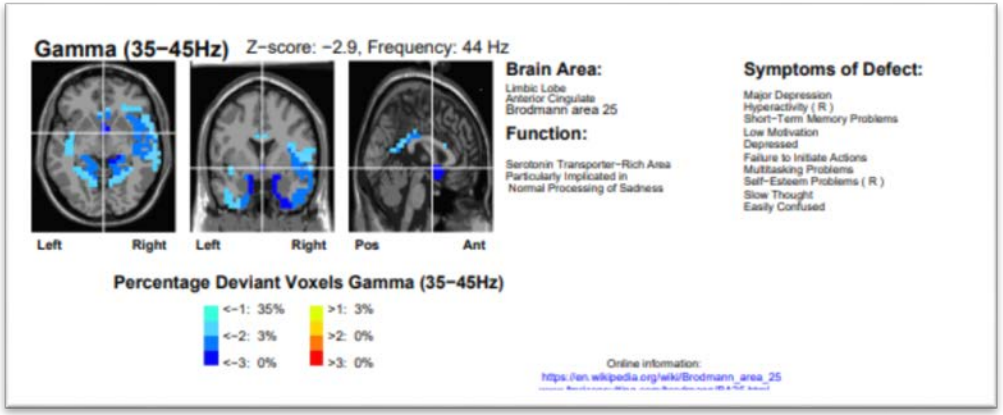
Neurofeedback & what it does

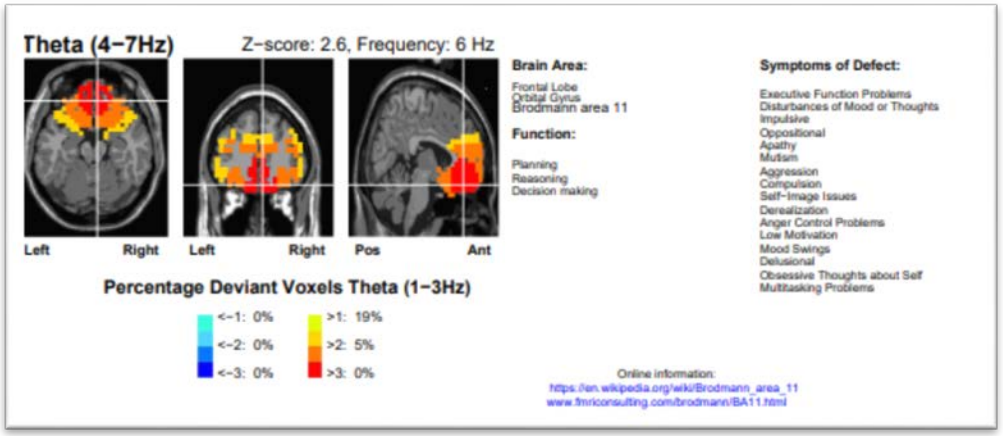
- Encourages Neuroplastic changes.
- Motivated by success
- Designed to encourage adaptation
- Using the brain map to develop growth areas.
- Pair symptoms with biomarkers
- Use symptoms to develop goals “If I no longer felt anxiety, that would improve the quality of my life”
- Neurofeedback is teaching the brain to be less defensive as a default

Neurofeedback Training Screen

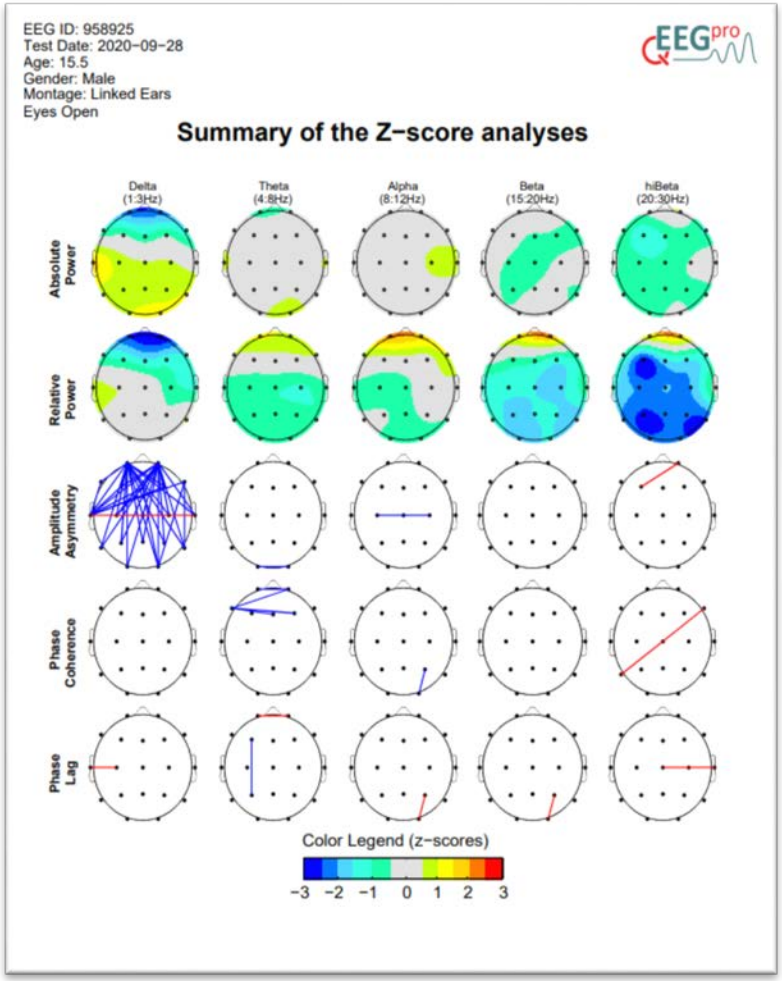
Mid qEEG

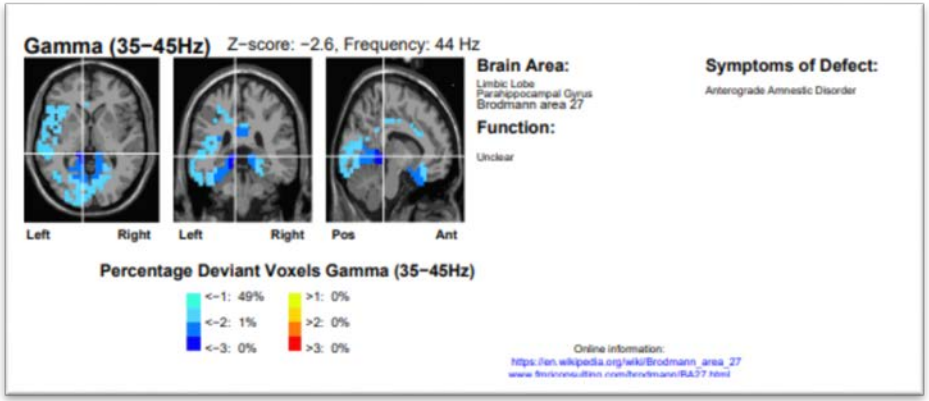

EEG ID: 814758
Test Date: 2020-06-15
Age: 15.24
Gender: Male
Montage: Linked Ears
Eyes Open
EEGpro
Summary of the Z-score analyses
Delta (1:3Hz)
Theta (4:8Hz)
Alpha (8:12Hz)
Beta (15:20Hz)
hiBeta (20:30Hz)
Absolute Power
Relative Power
Amplitude Asymmetry
Phase Coherence
Phase Lag
Color Legend (z-scores)
−3 −2 −1 0 1 2 3

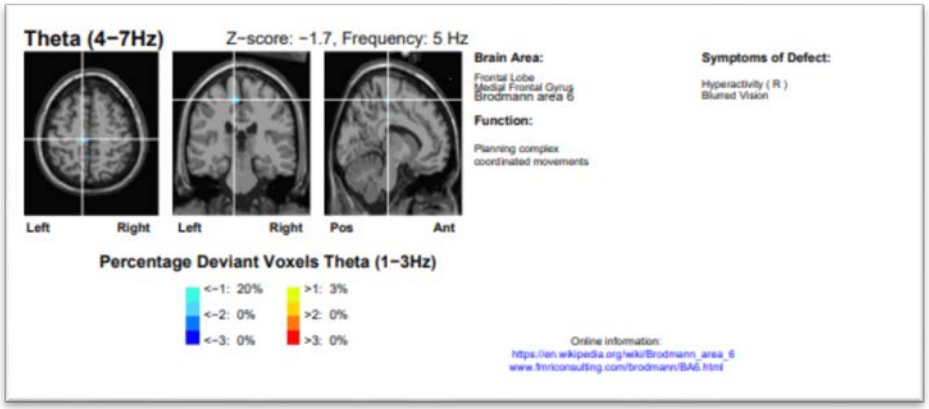

Gamma (35-45Hz) Z-score: -2.9, Frequency: 44 Hz
Left Right Left Right Pos Ant
Brain Area:
Limbic Lobe
Anterior Cingulate
Brodmann area 25
Function:
Serotonin Transporter-Rich Area
Particularly Implicated in
Normal Processing of Sadness
Symptoms of Defect:
Major Depression
Hyperactivity (R)
Short-Term Memory Problems
Low Motivation
Depressed
Failure to Initiate Actions
Multitasking Problems
Self-Esteem Problems (R)
Slow Thought
Easily Confused
Percentage Deviant Voxels Gamma (35-45Hz)
<-1: 35%
<-2: 3%
<-3: 0%
>1: 3%
>2: 0%
>3: 0%
Online information:
https://en.wikipedia.org/wiki/Brodmann_area_25


Theta (4-7Hz) Z-score: 2.6, Frequency: 6 Hz
Left Right Left Right Pos Ant
Brain Area:
Frontal Lobe
Orbital Gyrus
Brodmann area 11
Function:
Planning
Reasoning
Decision making
Symptoms of Defect:
Executive Function Problems
Disturbances of Mood or Thoughts
Impulsive
Oppositional
Apathy
Mutism
Aggression
Compulsion
Self-Image Issues
Derealization
Anger Control Problems
Low Motivation
Mood Swings
Delusional
Obsessive Thoughts about Self
Multitasking Problems
Percentage Deviant Voxels Theta (1-3Hz)
<-1: 0%
<-2: 0%
<-3: 0%
>1: 19%
>2: 5%
>3: 0%
Online information:
https://en.wikipedia.org/wiki/Brodmann_area_11
www.fmriconsulting.com/brodmann/BA11.html

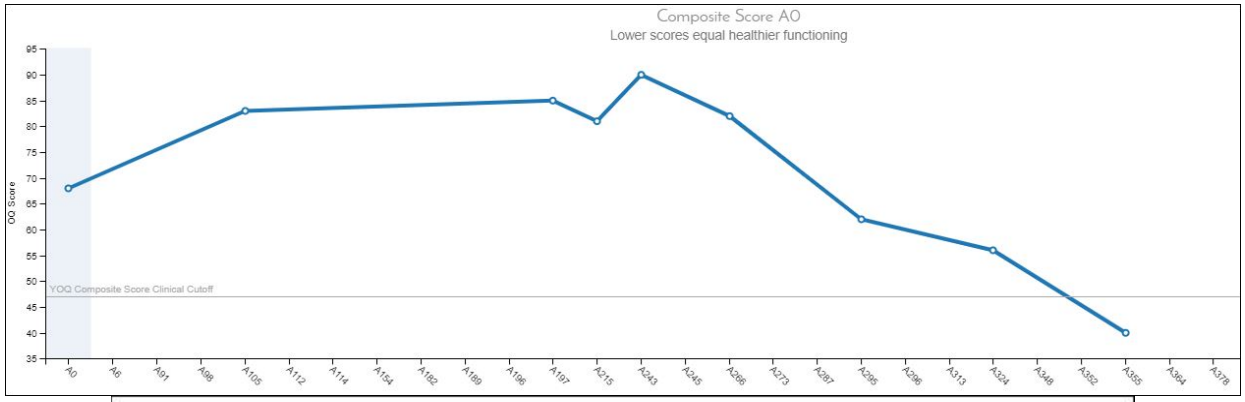
Post qEEG


EEG ID: 958925
Test Date: 2020-09-28
Age: 15.5
Gender: Male
Montage: Linked Ears
Eyes Open
EEGpro
Summary of the Z-score analyses
Delta (1-3Hz)
Theta (4-8Hz)
Alpha (8-12Hz)
Beta (15-20Hz)
hiBeta (20-30Hz)
Absolute Power
Relative Power
Amplitude Asymmetry
Phase Coherence
Phase Lag
Color Legend (z-scores)
-3 -2 -1 0 1 2 3

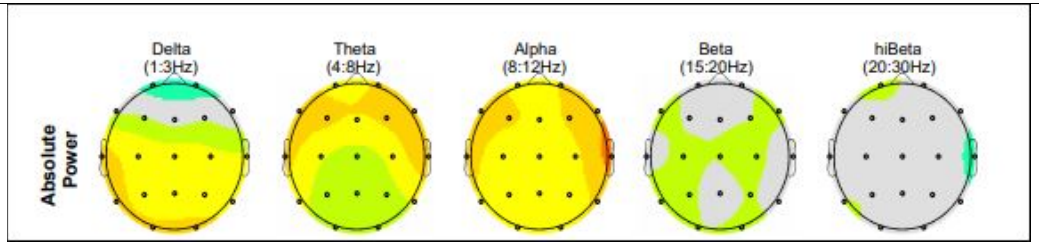

Gamma (35-45Hz) Z-score: -2.6, Frequency: 44 Hz
Brain Area:
Limbic Lobe
Parahippocampal Gyrus
Brodmann area 27
Function:
Unclear
Symptoms of Defect:
Anterograde Amnestic Disorder
Left Right Left Right Pos Ant
Percentage Deviant Voxels Gamma (35-45Hz)
<-1: 49%
<-2: 1%
<-3: 0%
>1: 0%
>2: 0%
>3: 0%
Online information:
https://en.wikipedia.org/wiki/Brodmann_area_27


Theta (4-7Hz) Z-score: -1.7, Frequency: 5 Hz
Brain Area:
Frontal Lobe
Medial Frontal Gyrus
Brodmann area 6
Function:
Planning complex coordinated movements
Symptoms of Defect:
Hyperactivity (R)
Blurred Vision
Left Right Left Right Pos Ant
Percentage Deviant Voxels Theta (1-3Hz)
<-1: 20%
<-2: 0%
<-3: 0%
>1: 3%
>2: 0%
>3: 0%
Online information:
https://en.wikipedia.org/wiki/Brodmann_area_6
www.fmriconsulting.com/brodmann/BA6.html

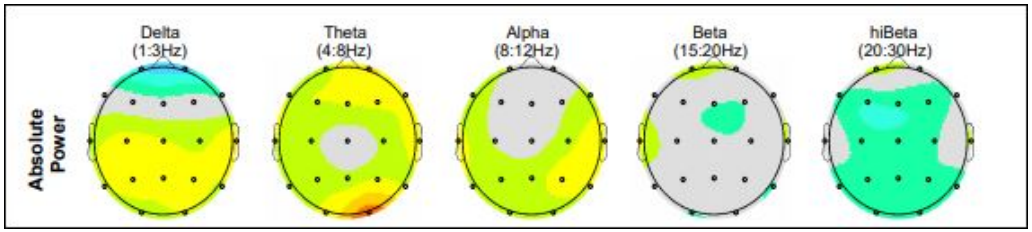
Attachment/Developmental Trauma Case Summary



1



2



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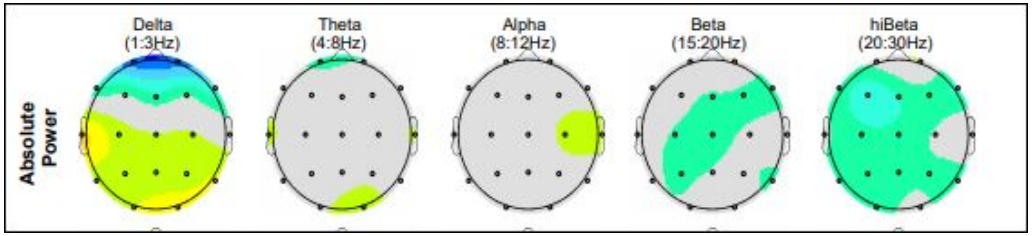
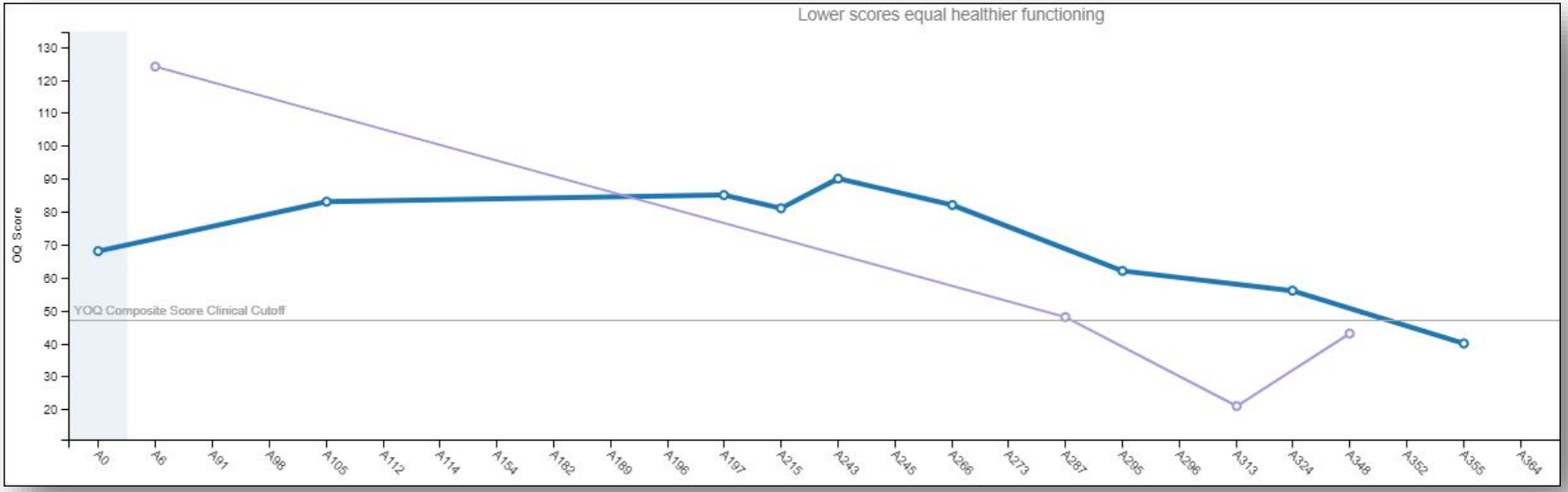


Parent and Student



Neurological Comparison Report

- Normalization is an indication of how much the student's brain has normalized since their previous recording.
- Change/Plasticity is an indication of their nervous system attempting to create a new homeostatic set point or create new pathways for more efficient adaptive functioning.
- Reorganization is the body is trying to figure out how to adapt to the change.

Pre-Teen Student Background

This child was adopted at birth in the united states, having his parents in the delivery room with his birth mother. It was a private adoption through an attorney, which was also an open adoption. The family stayed in the birth location for nearly 2 weeks after the birth, during which time he also spent time with maternal birth family. Adopted parents reports that the birth mother was not entirely honest about her mental health during the process; it was known that she had anxiety and depression, but family recently learned that birth mom is bipolar diagnosis and possibly suicidal. The child's family continued frequent contact with birth mom for the first 5 years. When he was an infant, the family would bring him to visit birth mom and siblings. There has been no contact with birth father, who was "engaged" to birth mom at conception, then when she told him of the pregnancy he told her to get an abortion and went back to his apparent current wife. The last time the child saw his birth mother was at age 7 when she came with a boyfriend to the house for dinner.

Diagnosis

Primal Wound

F41.1 Generalized Anxiety Disorder

F90.2 Attention Deficit/Hyperactivity Disorder, combined type

F81.81 Disorder of Written Expression

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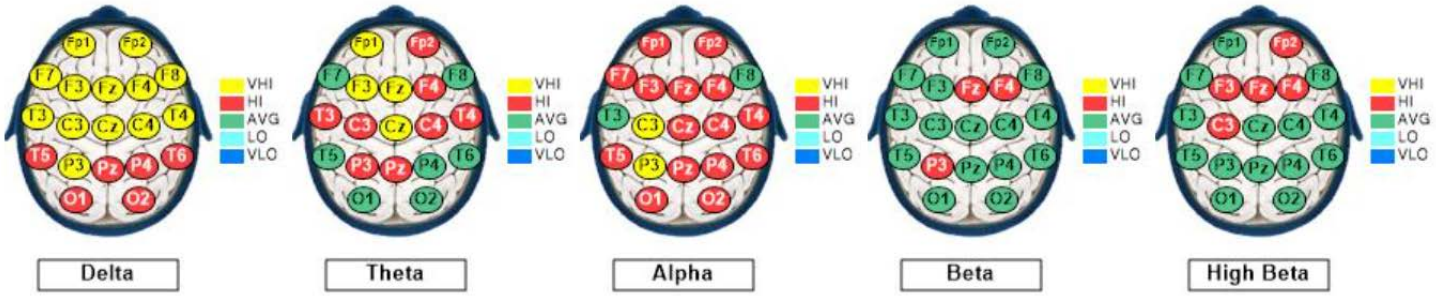
Beta Asymmetry is 69% indicating self-depreciating thinking and withdrawal tendencies.

Pre and Post

Magnitude - Intake (Eyes Open) : 4/9/2020

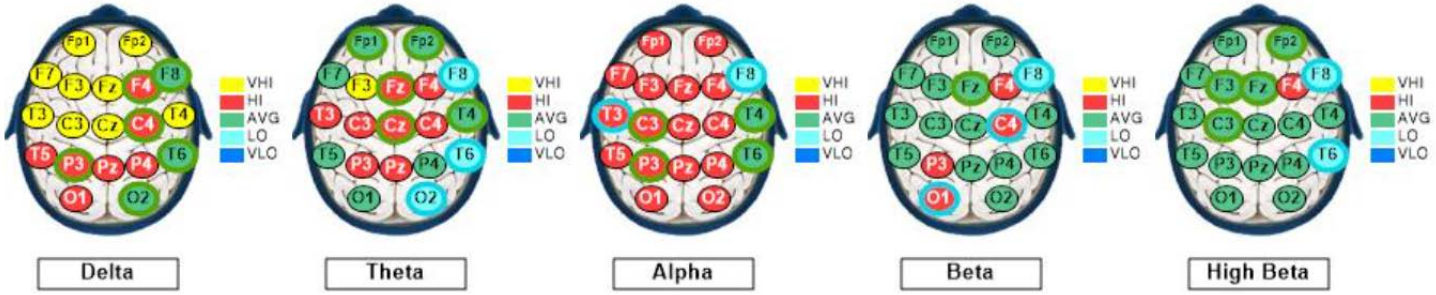


Magnitude Contrast

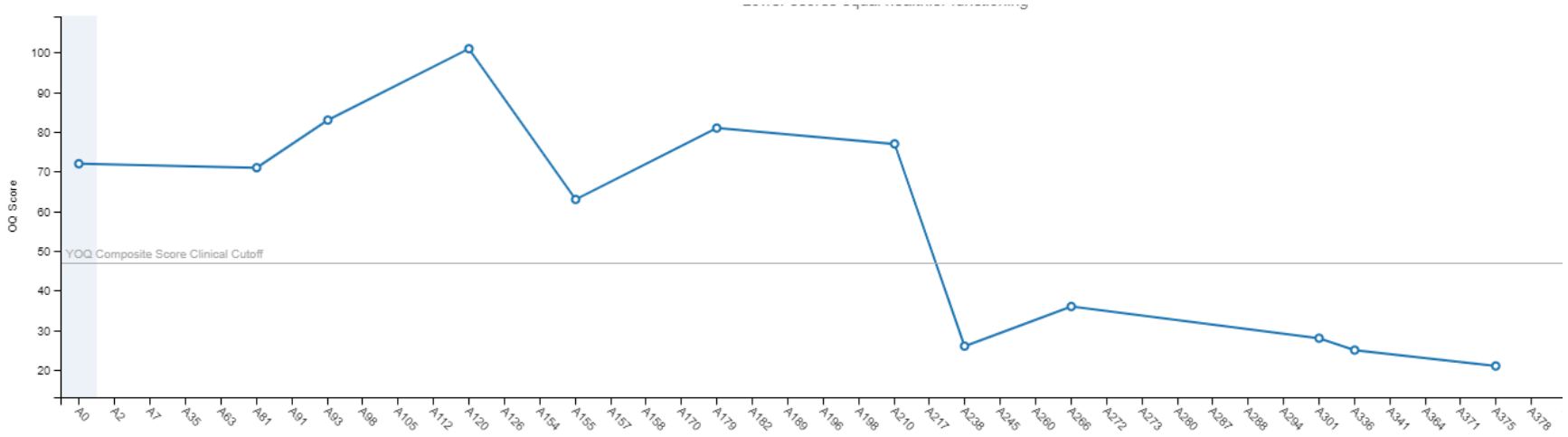
Down | -2 | -1 | 0 | +1 | +2 | Up

Click an adjustment level

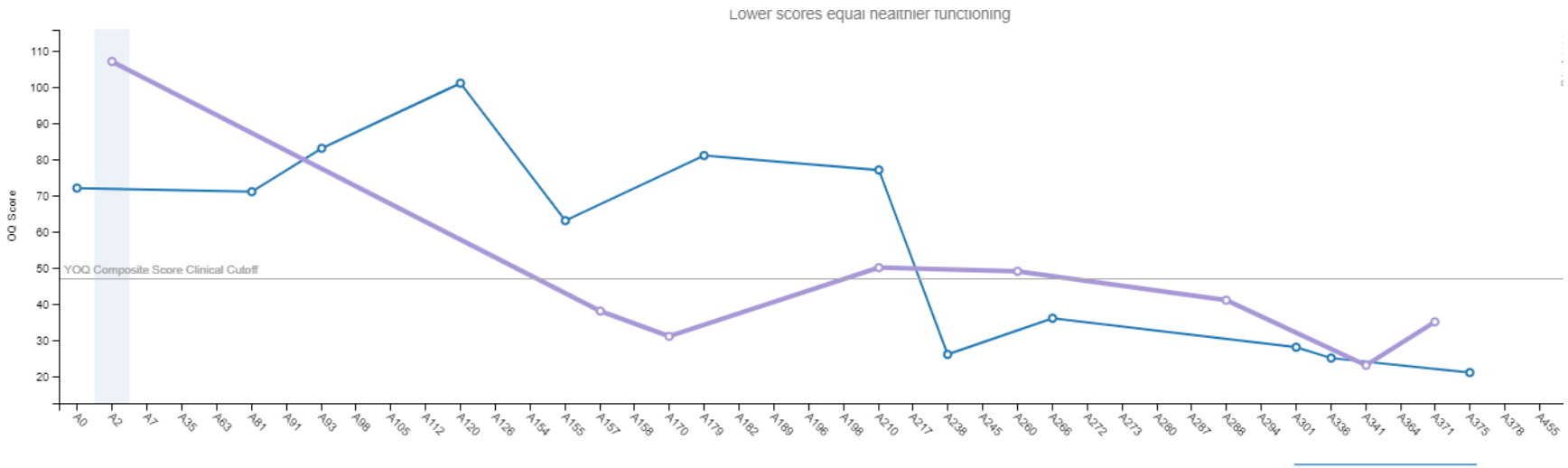
Magnitude - Exit (Eyes Open) : 11/16/2020



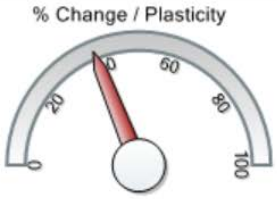
YOQ Student Report



Parent Overlay



38%
Change / Plasticity



44%
Normalization

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Thank You

Scott Kuenneke MS, LPC, BCN